MEDICAL LIBRARY

UNIVERSITY OF MICHIGAN
MAR 22 1951
MEDICAL LIBRARY

BRITISH MEDICAL JOURNAL

JOURNAL OF THE BRITISH MEDICAL ASSOCIATION

SATURDAY MARCH 3 1951

TABLE OF CONTENTS

Visual Hallucination of the Self JEAN LHERMITTE, M.D. 431

Physiological Jaundice of the Newborn ALEXANDER S. WIENER, M.D. 435

Mental Breakdown in Old Age FELIX POST, M.B., M.R.C.P. 436

Phaeochromocytoma of Adrenal Gland, with Sustained Hypertension
H. J. C. SWAN, M.B., M.R.C.P. 440

Two Cases of Phaeochromocytoma K. V. CROWTHER, M.B. 445

A Case of Adrenal Phaeochromocytoma
J. F. PANTRIDGE, M.C., M.D., M.R.C.P., and M. McC. BURROWS, M.B. 448

Retrolental Fibroplasia JOSEPH MINTON, F.R.C.S., and PAULINE COLE, M.B. 450

New Operation for Peptic Ulcer STANLEY O. AYLETT, M.B., F.R.C.S. 454

Rare Blood Group Antigen in Negroes ELIZABETH W. IKIN, B.SC., and A. E. MOURANT, D.M. 456

MEDICAL MEMORANDUM

Islet-cell Tumour of the Pancreas. F. J. Y. WOOD, M.B., B.Chir., M.R.C.P. 457

REFRESHER COURSE

Diseases of the Nipple. Sir CECIL WAKELEY, K.B.E., C.B., M.Ch., D.SC., F.R.C.S. 468

GENERAL ARTICLES AND NEWS

FELLOWSHIPS IN CLINICAL MEDICINE ..470
Modification of the Gordh Intravenous Needle. DONALD BLATCHLEY, D.A. 470
MEDICAL NOTES IN PARLIAMENT 484
THE SERVICES 485
UNIVERSITIES AND COLLEGES 485
MEDICAL NEWS 485
BIRTHS, MARRIAGES, AND DEATHS 487
QUESTIONS AND COMMENTS 487

REVIEWS

Hilton's Method 459
Textbook of Pathology 459
Squint 459
Chest and Heart 460
Monograph on Diabetes 461
Gastroscopy 461
Books Received 461

Vital Statistics 481

LEADING ARTICLES

Paying for the N.H.S. 462
Occupation and Peptic Ulcer 463
The Case for Neuro-psychiatry 464
Fellowship in Clinical Research 465

ANNOTATIONS

Phaeochromocytoma 465
Retrolental Fibroplasia 466
Industrial Medical Services 467
Sir Lionel Whitby 467

OBITUARY

R. G. McGowan, M.D., D.P.H. 478
A. G. Rewcastle, O.B.E., M.B., D.C.H. 478
Albert Ramsbottom, M.C., M.D., F.R.C.P. 478
Major-General C. W. Mainprise, D.S.O., M.R.C.S. 479
N. B. Stewart, sen., M.B., Ch.B. 479
Lieutenant-Colonel D. L. Harding, D.S.O., F.R.C.S.I. 480

REPORTS OF SOCIETIES

ROYAL SOCIETY OF MEDICINE: Anticoagulant Properties of Dextran 471
ROYAL SOCIETY OF MEDICINE: International Control of Communicable Disease 471

SUPPLEMENT

For Contents see First Page of Supplement

CORRESPONDENCE

Diseases of Maladaptation. HANS SELYE, M.D. 472
Oxford Hesitates. A. D. GARDNER, D.M. 473
Insomnia in General Practice. W. N. LEAK, M.D. 473
Tonsils and Angiomata. DENIS BROWNE, F.R.C.S. 474
Sulphonamides in Tonsillitis. S. W. VIVIAN DAVIES, M.B. 474
Tonsillectomy. K. F. WILSDON, F.R.C.S.Ed. 474
Orf. H. THISTLETHWAITE, M.B. 474
Iodine and Goitre. A. A. LISNEY, M.D. 474
Obesity and Thyroid. I. GEIKIE-COBB, M.D. 475
Exchange Transfusion Methods. M. S. FRASER, M.B. 475
Smallpox. J. S. GEMMILL, M.B.; C. SIMPSON SMITH, M.B. 476
The White Man's Disease. ARNOLD B. COWAN, L.R.C.P.Ed. 476
The South African Meeting. Sir REGINALD WATSON-JONES, F.R.C.S. 477
Spens Awards for Professors. A. C. FRAZER, M.D., and A. ST. G. McC. HUGGETT, M.B. 477
Points from Letters 477

MEDICO-LEGAL

Responsibility of Hospital Managements 480
360-day Baby 480

BRITISH MEDICAL ASSOCIATION, TAVISTOCK SQUARE, LONDON, W.C.1

No. 4704, WEEKLY, PRICE 2/-

Copyright

REGISTERED AS A NEWSPAPER

Pre-Natal Diet and the course of Pregnancy

The normal functioning of the reproductive organs during pregnancy depends, among other things, upon the plentiful intake of vitamins and minerals.

Medical opinion is gaining ground that there is an increased need for Vitamin B in late pregnancy and the early puerperium. Its administration during the period before childbirth has resulted in less vomiting and nausea and in marked improvement in the nutritional value of the breast milk. In order to assure the building of the foetal bones *in utero* and afterwards during breast-feeding, the importance of Vitamin D and of calcium and phosphorus is also established.

In Supavite Capsules the practitioner has at hand a combination of these and other essential vitamins and minerals in a scientifically balanced form of particular value in maternity cases.

Angiers
SUPAVITE
CAPSULES

FORMULA

Each AMBER capsule contains: Vitamin A, 4,500 International Units; Vitamin D, 600 International Units; Vitamin E, Content of one minim wheat germ oil (54.9 milligrams). Each BLACK capsule contains: Vitamin B_1, 1 milligram; Vitamin B_2, 1 milligram; Vitamin C, 20 milligrams; Nicotinamide, 16 milligrams; Iron (Ferrous), 17 milligrams; Calcium, 39 milligrams; Phosphorus, 30 milligrams.

THE ANGIERS CHEMICAL CO. LTD., 86, CLERKENWELL ROAD, LONDON, E.C.1

To assist convalescence

Invalid Bovril is a highly concentrated form of Bovril for use in the sick-room. Prepared without seasoning, it provides the maximum concentration in the most easily assimilated form. Many doctors recommend it in cases where the patient needs "building-up" after illness. Perhaps there is a patient of yours who would benefit from a course of Invalid Bovril?

Invalid
BOVRIL
THE ESSENCE OF CONVALESCENCE
SOLD BY ALL CHEMISTS

Emergency measure..

The anticipated effects of glucose as an energiser and restorer are to some extent lost if the patient shows a degree of unwillingness to accept it.

But the common aversion to the sickly, sometimes nauseating, taste of glucose in many of its ordinary forms is strikingly absent whenever LUCOZADE is offered.

LUCOZADE is so palatable, so refreshing, that neither children nor adults ever need urging to take it as prescribed.

(Containing Dextrose, Maltose and Dextrin in solution equivalent to 23% w/v Liquid Glucose B.P.)

LUCOZADE

An improved form of glucose therapy

LUCOZADE LTD., GT. WEST RD., BRENTFORD, MIDDX. M.16

SALTAIR

SALT'S
REGISTERED
COLOSTOMY BELT
WITH STERILIZABLE RUBBER CUP

Designed specifically for use in cases where faeces are of a solid nature, or the amount is small. The special feature is that the cup is made of moulded rubber, in one piece, and has no corners nor crevices—therefore does not retain odour. Full details in our Corset and Belt Book—post free to medical people on request.

Appointments at London address: 1, STANLEY HOUSE, 103, Marylebone High Street, London, W.1. Tel.: Welbeck 3034

Guarantee
We guarantee to allow exchange or accept the return of any appliance without cost ordered by the Medical Profession if such Appliance is not found Suitable within fourteen days from date of supply.
Salt and Son Ltd.

SALT & SON LTD. BIRMINGHAM 2.

BRITISH MEDICAL JOURNAL

LONDON SATURDAY MARCH 3 1951

VISUAL HALLUCINATION OF THE SELF*

BY

JEAN LHERMITTE, M.D.

Honorary Professor, Faculty of Medicine, Paris

From remote times philosophers have been struck by a most unusual phenomenon which until recently remained unexplained and almost unbelievable: the vision of one's double, the visual hallucination of the self. This experience is a sensation the patient has of seeing his body image as reflected in a mirror.

As you know, this strange phenomenon has been interpreted in many different ways and has also brought forth many literary works, particularly in Germany during the Romantic period of the eighteenth and nineteenth centuries. Thanks to the knowledge we have acquired about our body image and its distortions through diseases, deep research work on this phenomenon has become possible. That is why I have chosen the visual hallucination of the self, or autoscopy, as the theme of this lecture.

Let me first remind you of the meaning to be given to this word "hallucination." For the founder of psychiatry, Esquirol, hallucination means a perception without object. Any man who believes he can see his own image appear in front of him when there is no mirror to reflect it is therefore subject to a visual hallucination of an autoscopic character. A great number of strange and quaint features go to make up this phenomenon of autoscopy.

"With the Eyes of the Mind"

First, the suddenness with which it appears. The vision comes unexpectedly while the patient is wide awake, more often when he is lost in thought or when he is drowsy. This was the case with Goethe, who wrote just after he had left his fiancée: "I saw myself, not with the eyes of the body, but with the eyes of the mind," and he added: "When I shook my head at the sight of this delusion it disappeared."

A young girl, a case of Selliers', had been walking in Paris at dusk in a dreamy state, when she suddenly saw in front of her her own image. Another young girl, also a case of Selliers', who seemed quite normal although there were slight signs of hysteria, one evening saw her own image as though in a looking-glass. "I would even have drawn back," she said, "if I had not realized that there was no mirror."

There is also the case of a young girl who was sitting lost in thought, half dreaming, near a lamp-lit table, and who suddenly saw her own image appear several times in front of her.

An Austrian author who has done remarkable work on autoscopy relates that one evening, as he was walking home half-asleep, he saw in a window the appearance of a man of his own age looking at him. He wondered whose this expressionless face watching him could be, and gradually he became convinced it might be himself. Indeed, he felt that he was emotionally linked to this strange apparition.

Source of the Hallucination

It is somewhat remarkable that, although the state of sleepiness seems to be specially favourable to the autoscopic hallucination, the state of authentic dream is only exceptionally the source of this phenomenon. Yet some workers noted that sometimes this autoscopic image came into the moving pattern of the dream. A peculiar fact is that the dreamer's image comes to his mind with a deep feeling of sadness or with deadly anxiety. I remember reading in some old book that a man had been frightened during his sleep because he had seen near his bed the double of himself, in agony.

I recently received the confession of a man, seriously ill, who was visited during several nights by the image of his double. This offered mainly a back view, wearing black, ill-fitting clothes. This double seemed depressed and obviously under deep mental stress. And the dreamer thought: "There you are. Yes, it is you. How broken down, wretched, and miserable you are! Death awaits you."

On another occasion our patient had the impression that his body had split in two and that this double was lying very close beside him in a state of imminent death. Soon afterwards the dreamer had the impression that his double was dead, already in its coffin awaiting the funeral. When the undertakers came to take it away the patient screamed, "Not yet!" and woke up in a state of deep distressing fright.

Its Form

While autoscopic hallucinations often come more readily to patients when they are in a state of drowsiness, these visions also appear to subjects whose minds are wide awake, so that we possess a great number of detailed records of this form of hallucination. Usually the image seen is very clear but not vivid in colour. When the subject attempts to get near it the image draws

* Being a lecture delivered at the National Hospital, Queen Square, London, June, 1950.

back or fades away after having performed movements similar to those of the original.

Sometimes the hallucinatory image appears very thin, as if it were a projection on a screen; at other times, on the contrary, it would seem to be made of a jelly-like or glass-like substance, so that the patient can see everything around him through this ghostly illusion, which would be impossible if the image were real. This is not a constant rule, and often the phantom seems to be made of an opaque substance, not transparent to the eye.

One would say that such a strange phenomenon must seem unbelievable and even unthinkable to a reasoning mind. In fact, how can one admit that a subject apparently capable of judgment and self-criticism can come to believe such a vision to be a reality?

Here I must say that all those who have been victims of autoscopy have not always been immediately convinced of the reality of the image which appeared in front of them. Some, before believing in it, hesitated, and even criticized the authenticity of the vision, but in the end it became almost compelling.

This shows, to my mind, that it is an error to want to set up a barrier between the hallucinations which are questioned and admitted to be illusions of the senses, or a hallucinosis, and, on the other hand, the hallucinations which are not criticized and which would be the only real hallucinations for some authors.

Close Connexion between Image and Subject

There is one phenomenon on which I want to enlarge because it seems to be peculiar to autoscopic hallucinations. Never, in fact, do we find it in other sensory hallucinations. It is that the subject not only believes he can see his own image as if it were reflected in a mirror but also has the knowledge that in this image there is a part of himself: he feels connected to this image by spiritual and material links. The life filling it is his own life; indeed, he has the illusion that he lives in this image, which thinks and feels like himself.

No one has given a better description of this intimate relationship between the image and its original than the poet Alfred de Musset in "La Nuit de Décembre":

> "Partout où j'ai voulu dormir,
> Partout où j'ai voulu mourir,
> Partout où j'ai touché la terre,
> Sur ma route est venu s'asseoir
> Un étranger vêtu de noir
> Qui me ressemblait comme un frère."

The intimate relationship between the original and the vision is so close that some authors maintain that the most important fact is not the visual hallucination but the notion of "belonging" or of material and spiritual dependence between the image and its object. Therefore the delusive figure, the double, feels, thinks, acts in a manner similar to that of the subject himself and sometimes talks to him in a language which is his own language, although, as is the case in dreams, the words expressed are not perceived by the ear but guessed more than heard. And yet I have found in the psychiatric literature the case of a subject who was able at will to make his own image appear in front of his eyes, as though in a mirror; it would make the same movements and say words that he would hear and that he knew before they were uttered. But this patient had auditory hallucinations and transferred them to the autoscopic image.

Wigan, in the last century, refers to a similar case in which the subject could summon his own body image, which would laugh as he laughed.

Anxiety

While the state of drowsiness facilitates the onset of autoscopic hallucination, there is another condition often seen at the source of the phenomenon—it is anxiety. For instance, the following case published by Parioli shows the importance of the affective state in autoscopy.

A young woman, apparently free from all worry, was working one evening in a large room divided in two by a curtain. Suddenly she thought she could hear one of her children getting restless in his bed; she drew the curtain and went into the other room, where she saw her own image bending over her child's bed, dressed in clothes she had not worn for some time. "The face of this phantom was turned towards me," she said, "and was excessively sad." In trying to explain the cause of this peculiar phenomenon, certainly capable of causing anxiety, this woman remembered that three months before she had lost a child whose body had been placed on this same bed and that she was then dressed in the clothes worn now by the apparition.

I could mention many more similar cases. There is the story of that unfortunate doctor with an incurable disease. One day in the passage of a house he was entering for the first time he saw his own image. This happened several times afterwards, and the doctor noted the strange fact that on each occasion the hallucinatory image made the same gestures as himself and at the same moment.

While in most cases the phenomenon of autoscopy is an occasional occurrence, there are nevertheless cases whose characteristic is the prolonged duration of the frequent repetition of the body image. And one can easily guess that persistence of the double of oneself is enough to disturb a person's mind and also to stimulate the imagination of writers.

The problem of the double must therefore be approached both through literature and through medical pathology.

The "Double" in Literature

The phenomenon of the double as we find it in literature has long been considered to be a purely intellectual notion or the result of imagination. But in fact all we know to-day shows that nothing is created that has not been more or less deeply felt.

Many are the writers, novelists, philosophers, or poets who have used the image of the double in their work. First comes Aristotle, the greatest philosopher of ancient Greece, who tells the story of a man who could not go for a walk without seeing his own image coming towards him. Wigan and Michea give similar examples of subjects permanently followed by their shadows or doubles. I have already mentioned de Musset.

The double is also used in *Tales of Hoffmann* (story of the lost reflection, for example), *The Classical Stories of Chamisso* (Peter Schlemyl), Hans Andersen's *Tales*, *Hesperus* (Jean Paul Richter), *Le Dissipateur* (Ferdinand Raimund), *Notturno* (Gabriele d'Annunzio), *The Portrait of Dorian Gray* (Oscar Wilde); also in the *Tales* of Edgar Allan Poe (especially the singular one of William Wilson), Steinbeck's *Great Valley*, and more recently Robert Hichens.

All these authors have introduced the character of "the double" to give more colour to the tales and to

stimulate the reader's imagination by showing him the strangeness of life and the complexity of the human mind.

Of all the writers who have mentioned the double in the adventures of their imaginary characters, that genius of a novelist Dostoievsky is undoubtedly the one who has offered the most complete description of it. The image of the double is already outlined in works such as *The Idiot* and *The Brothers Karamazov;* but probably Dostoievsky had been particularly haunted by this phenomenon, as he devotes to it a very illuminating tale, the title of which is none other than *The Double.* He tells the following story.

A man called Goliadkine, a meticulous clerk, one morning made some extravagant purchases, and talked to people in involved sentences, with a feeling that everybody was spying on him.

One evening this man goes into a ballroom uninvited. The party is celebrating the engagement of the daughter of a Councillor of State. He acts in a most eccentric manner, and a group of people question his behaviour. At about midnight he departs hurriedly. We find him again wandering in deserted streets. The weather is foul. When nearing the Israilowsky bridge Goliadkine has the feeling of someone following him, watching him, and whispering to him in a staccato voice. Fighting through wind and snow-storm, Goliadkine meets a man be believes he knows. He looks at him, then suddenly sets off after him. This man is going towards Goliadkine's house, enters it, sits on the bed, and welcomes Goliadkine. Then begins the drama. Staring wide-eyed and with his hair standing on end, Goliadkine is scared and shakes with terror, for there is no possible doubt that the stranger is himself. Another Goliadkine is sitting there facing him.

Next morning our hero goes to his office, and there, working at his desk, is his double, the other Goliadkine. "It was really myself," said Goliadkine: "same size, same build, same baldness. In everything he corresponded completely to myself."

Goliadkine's mind is greatly disturbed. How can one understand these happenings, this splitting of one's outward appearance? All this is incomprehensible to him, and he wonders if it is not a dream.

This state of uneasiness is obvious to his colleagues, who press him with questions, and remark that he has changed, that he looks ill. One of them reminds him that this phenomenon of the double is well known: "The same thing happened to one of my aunts," he said, "but when she saw herself in front of her double she died"—a strange manner of comforting the unhappy Goliadkine.

In spite of all his efforts to shake off this vision, Goliadkine cannot rid himself of his double. This other self will not leave him alone. It copies exactly all his movements; it bends down when he bends down, walks when he walks. Yet sometimes the double contradicts him or laughs at the real Goliadkine.

Then comes the phase of persecution. Revolt and hatred come to Goliadkine, at the same time anxiety at the thought that the double might harm him and even use poison to kill him.

After numerous extraordinary adventures our hero's mental agitation increases to the point that one day, going to a reception to which he had not been invited, he believes he can see a thousand Goliadkines appear in front of him, move oddly about, and surround him. The police are called, while the double whispers, "It is the doctor." He then faints. In the conveyance taking him to an asylum the attendant tells him: "Don't worry any more; from now on you will be kept by the State."

I have given you some details of this tale of Dostoievsky's because in the story we are shown what happens in real life. Goliadkine's adventure is a true story. What do we find in it? That a neat methodical man is suddenly taken with megalomania and makes absurd purchases, partly realizing that he is not quite himself and that he does it under the impulse of a power foreign to his personality. While undergoing a medical examination he gets confused and wonders why he is at the doctor's. Then come the extraordinary adventures with the double, then degradation in dementia.

The whole series of these events allow us to conclude that Goliadkine was showing signs of an organic psychopathy. In the same way Guy de Maupassant was also visited by the apparition of his double, was subject to persecutions and hallucinations, and, finally, became insane. And in Kafka's famous novel *The Trial* we find the hero in a very similar state.

A Personal Case

For many years I have personally followed the case of a young girl who had a vision of her double nearly every night. This is how this phenomenon occurred. After she had gone to bed she felt as though she was subject to a spell and went into a kind of trance, during which she could be examined, because she was in an irreversible state, quite different from sleep.

Very often her body halved itself, and she then had her earthly body, which remained in the bed, and her astral body. This latter was savagely wrenched from her and taken into the astral sphere, but she could feel it and see it in the grip of Satan. The Devil would torture it in a thousand frightful ways, would shoot at it with a gun, would throw it into a bush of thorns, surround it with snakes, and finally—and this was the most horrible of all, because she was a good and pious girl—he would inflict upon it sexual outrages.

The division of her physical and mental personality was a torture to her, and in her trance she would implore Satan to give her back her double, to "redouble" her. When this double was given back to her, she said she had an unpleasant feeling of a dead skin being held against an open wound.

What is very instructive is the fact that this young patient had had epidemic encephalitis a few years before this phenomenon of the double began to appear.

Facts of this kind show that the vision of the double is not a romantic or fanciful invention but a pathological reality.

Diseases which Can Produce the Phenomenon

I could tell you of a number of cases which show the autoscopic vision of the double in many different diseases of the central nervous system.

First, in epilepsy. As Hughlings Jackson and his disciple, Kinnier Wilson, used to say, epilepsy is surely the disease which teaches most to the neurologist as well as to the psychiatrist. Lemaître, Charles Féré, Griesinger, Meyer, Hagen, among others, have published numbers of cases of epileptics who were visited during their fits by apparitions of their double. Let us note that the vision is witnessed sometimes by the patient himself who has not completely lost consciousness, sometimes by others present during the patient's fit. His behaviour during the paroxysms, his language, leave no doubt about the fact that it is himself he is seeing. An odd fact is that for the same patient the vision appears always in the same manner and with the same shape. Let us add that sometimes the subject gives to his double his own sensations. Thus a patient of Féré's used to shout during the twilight period after the fit, "Give him a cigarette. Light it; the poor man has no right hand. Rub his hand; his fingers are pricking."

He was himself at the time subject to post-paroxysmal paralysis of the right side.

In a patient of Nasse's, this is how things happened: a light seemed to surround the patient, then out of it appeared a shape similar to himself and dressed like himself. It went across from right to left in the visual field, then disappeared.

In other cases the apparition of the double comes after a hallucination of another kind. Thus, in a case published by Monet the patient first had nausea, then the double appeared in front of him.

Infectious diseases, and especially typhus, seem also apt to produce this strange splitting of personality. I recently saw a young woman who was taken, the day after her wedding, with acute mental confusion and agitation. This patient thought she could see hands and faces on the wall of the room. When she was quieter she had the feeling that someone was standing behind her chair. She turned round and saw a young woman in the white dress she had worn the previous day, and she realized that this strange visitor was herself.

One of my colleagues was going to hospital one morning. He was tired and shivery. Suddenly he saw before him a man walking with difficulty. He realized he knew this man. It was himself. When he reached the hospital the vision vanished. (Sivadon.)

This phenomenon of the double can be produced by many other diseases of the brain besides epilepsy. It appears in general paralysis, in encephalitis, in encephalosis of schizophrenia, in focal lesions of the brain, in post-traumatic disorders; but what I want to lay stress upon is the fact that the apparition of the double should make one seriously suspect the incidence of a disease.

Literary Genius and Mental Abnormality

No doubt one can object that if so many authors have indulged in a description of the phenomenon one cannot consider them all to be ill or insane. Although I do not want to generalize to excess, let me remind you that all the writers who best described the vision of the double were singularly abnormal. Hoffmann, the son of a hysteric, used to see ghosts, and wake his wife so that she could witness his visions. He was tortured by the thought of death, his mind deteriorated, and he ended in general paralysis.

Guy de Maupassant, when he described his hallucination in *Le Horla*, was already stricken with the same disease. Jean Paul Richter was obsessed by the fear of madness. From his youth he sees his double, and he writes: "I look at him, he looks at me, and both of us hold our ego in horror." Edgar Allan Poe was subject to melancholia, alcoholism, toxicomania. He was unstable, epileptic, and tortured by all sorts of phobias. Dostoievsky was subject to major epileptic fits and to most unexpected changes of temper. What can one say about Alfred de Musset? Everyone knows that he was cyclothymic and subject to toxicomania.

This list, which I could extend, shows well that the greatest literary geniuses can carry in them very great mental abnormalities, yet it is perhaps to these that we owe the most surprising products of man's genius.

A Perception without Object

As I have told you, the first cases of autoscopy recorded were a psychological problem that the authors in the last century could not possibly solve. For some, however, the apparition of the double meant a perturbation of that kind of sensibility by which we perceive with great difficulty the existence and the workings of our body. French psycho-physiologists have given the name of "cenesthesia" to this sensibility. It is only with the works of Henry Head and of Paul Schilder that one can begin to understand the phenomenon of autoscopy.

Henry Head and Gordon Holmes saw that in our sensorimotor structure it was necessary to take into consideration the postural attitudes, because it is to them we owe the knowledge we have of the position of our limbs, without which all voluntary action would be impossible. Making use of this knowledge, Paul Schilder wrote a small but very useful book called *Das Körper Schema*. As a matter of fact, this title was badly chosen, because it is not a body scheme we possess, but more exactly an image of our body. So when Schilder took refuge in the United States he revised his original work and called it in a more justified way "The Image of the Body," or "The Bodily Image."

What is clear from all the investigations relating to the body image is that we possess at the boundary of our consciousness the notion of our physical personality—an idea, in the Greek philosophers' sense, of our body. If this image can disappear or be distorted through various diseases of the nervous system, it can also release itself partly from its material frame to become a hallucination—in other words, a perception without object.

It is not necessary for me to add that the knowledge of autoscopy and its psycho-physiological mechanism has enabled us to understand the meaning of many psychic manifestations which remained mysterious to our predecessors, and that, thanks to clinical data, the inner psychology of a number of writers has been revealed.

Thus we come back to a basic principle to which I am fond of referring—namely, that all progress in our knowledge in psychopathology is also progress in our knowledge of man himself, which is the supreme aim of science.

A paper in a recent issue of the *Journal of the American Medical Association* (February 3, p. 314) describes the detection of cancer in rural general practice in Ohio by means of regular routine physical examinations carried out by 42 members of the Lorain County Medical Society. Since the scheme began in 1944 a total of 950 presumed healthy women have shown between them 13 malignant conditions (four breast cancers, three of bowel, three of skin, one of the body of the uterus, one leukaemia, and one Hodgkin's disease), and also 255 benign conditions requiring treatment. This involved the making of 1,650 separate examinations. The first annual visit of each patient was the occasion of a complete physical examination, with blood counts and urine tests, and where possible a Kahn test for syphilis and a Papanicolaou cervical smear microscopical examination for malignant cells. If the patient was 35 years or older a second visit was made six months later for a breast and pelvic examination only. The author estimates that the 20,815,000 women over 45 in the United States could all have an annual medical examination if 100,000 physicians each gave an hour a week to the work. He draws attention to the fact that 11 out of the 13 patients in whom malignancy was found in this investigation were over 40 years old, and asserts that 80% of all cancers can be found by inspection and palpation, which means that the general practitioner is the best person to make the initial diagnosis.

AETIOLOGY OF PHYSIOLOGICAL JAUNDICE OF THE NEWBORN

BY

ALEXANDER S. WIENER, M.D.

Brooklyn, New York

Weech (1950) has aptly described physiological hyperbilirubinaemia as an explosion marking the infant's entrance into the world. It was Ylppö (1913) and Hirsch (1913) who conducted the pioneering investigations which threw the first light on the nature of this phenomenon. These workers showed that there is an inverse correlation between the height of the hyperbilirubinaemia and the amount of bile excreted in the faeces. On the other hand, there is no convincing evidence of an excessive breakdown of red cells to account for the physiological jaundice occurring during the neonatal period. Most workers therefore believe that physiological jaundice of the newborn is due to a functional immaturity of the liver at birth, and as further evidence supporting this point of view the more frequent occurrence of manifest jaundice among premature infants has often been cited. The purpose of the present communication is to propose a different hypothesis of the pathogenesis of physiological jaundice of the newborn.

Distinct from the so-called physiological form of jaundice in the newborn are those instances designated as icterus gravis. In contrast to the benign course of physiological jaundice, icterus gravis often terminates with the death of the infant on the second to fifth day of life, and among infants who survive a significant percentage are left with residual liver and brain damage. As was first shown by Levine and associates (1941) the bulk of these cases can be explained by sensitization of an Rh-negative mother to the Rh factor of Landsteiner and Wiener, and the resulting noxious effect of the maternal Rh antibodies on the Rh-positive foetus. Exceptional examples of icterus gravis have been attributed to isosensitization to the Hr factors and to other blood factors, especially the A-B-O factors. However, isosensitization to the A-B-O factors usually gives rise to a milder syndrome designated as icterus praecox (Halbrecht, 1944; Wiener *et al.*, 1949).

The Hypothesis

It is my view that physiological jaundice does not differ in kind from icterus gravis and icterus praecox, but merely in degree. The objection may be raised that in icterus gravis and icterus praecox there is usually an accompanying anaemia. However, it has been found that there is little or no correlation between the degree of the anaemia and the intensity of the jaundice, and some erythroblastotic babies die from kernicterus without developing anaemia. Moreover, when the maternal Rh antibodies are weak the syndrome in the baby may be so mild as to be clinically indistinguishable from physiological jaundice. The antibodies responsible for physiological jaundice, according to my hypothesis, are the cold auto-antibodies normally present in every individual's blood.

Most immunologists consider natural antibodies to be different from antibodies arising in immunization; some workers maintain that the former represent the result of a maturation process of serum globulins, the steric structure of the natural antibodies matching that of the antigen merely by coincidence. As I have pointed out (Wiener, 1951), however, there is no real difference between natural and immune antibodies, the only reason for distinguishing between them being that in the case of the former the time when the individual was exposed to the antigen and the exact nature of the antigen are unknown. Therefore the antigen used to detect natural antibodies will usually not be the same antigen that called forth their production. That explains why the reactions obtained with so-called natural antibodies are often of relatively low avidity and are most distinct as a rule at refrigerator temperature. At body temperature the thermal agitation of the molecules would tend to break the feeble union between antigen and natural antibody.

Origin of Auto-antibodies

According to my view (Wiener, 1951), the natural alpha and beta antibodies are of heterogenetic immune origin, due to the presence of chemically related antigens in parasitic micro-organisms. The reciprocal relation between isoagglutinogen and isoagglutinin (Landsteiner's law) holds either because incompatible isoagglutinins are not formed or because they are absorbed and neutralized as quickly as they are formed. Kabat (1949) has shown that the A-B blood-group substances are mucopolysaccharides composed of N-acetyl D-glucosamine and D-galactose residues. Apparently the group specificity is due to a relatively small part of the molecule; according to Landsteiner and Harte (1940, 1941), the group specificity may be due to small peptide side chains, while Kabat *et al.* (1949) believe it is due to side chains composed of fucose (methyl pentose). In either event this would explain why mucopolysaccharides of similar chemical structure have been isolated from the saliva of individuals of all blood groups, both secretors and non-secretors.

The fact that the polysaccharides from the capsule of type XIV pneumococci also yield D-glucosamine, D-galactose, and acetic acid on hydrolysis (Goebel *et al.*, 1939) explains adequately the observation that type XIV pneumococcus horse antisera strongly haemolyse and agglutinate human red cells of all four blood groups. If infection of human beings with bacteria possessing similar polysaccharides can likewise stimulate the production of antibodies for human red cells, those capable of combining with the individual's own cells at body temperature would be absorbed as quickly as they are formed, leaving behind only the fraction active at low temperature—namely, the cold auto-antibodies. Thus, according to my view, the normal auto-antibodies are probably capable of combining with the N-acetyl D-glucosamine and D-galactose skeleton of the blood-group substances, but only at low temperature.

It has been shown (Wiener, 1948) that not merely Rh antibodies but also antibodies of other specificities occur in two principal forms—namely, bivalent and univalent. Bivalent antibodies seem to be composed of larger molecules, and are held back by the intact placenta, while univalent antibodies, which are presumably of smaller size, pass through the normal placenta freely. Thus, as I have pointed out (Wiener, 1948), it is the univalent Rh antibodies which cause typical erythroblastosis, and not the Rh agglutinins as originally postulated by Levine *et al.* (1941). Similarly, univalent alpha and beta antibodies can cause illness in an infant of an incompatible group (Wiener *et al.*, 1949). The fact that alpha and beta antibodies are normally present in maternal serum

explains why this condition not infrequently affects the first-born infant, and at the same time, since the normal alpha and beta antibodies are presumably of heterogenetic immune origin, they are poorly adapted to the antigen, and therefore usually give rise to a milder syndrome than Rh antibodies. However, iso-immune alpha and beta antibodies may also be formed occasionally, and then a more severe form of erythroblastosis may result (Wiener *et al.*, 1949).

Finally, auto-antibodies also occur in two forms—namely, bivalent and univalent. By using trypsin-treated test cells and performing the tests at low temperature I have been able to demonstrate the presence of univalent auto-antibodies not only in the sera of mothers but also in their newborn infants. These are the antibodies which I believe are responsible for physiological icterus, and the fact that natural auto-antibodies are even more poorly adapted to human red cells than the natural alpha and beta antibodies explains the benign nature of this illness. However, some hitherto unexplained instances of icterus gravis may be due to exceptionally potent auto-antibodies in the maternal serum.

The above has been offered as a working hypothesis while further experiments are being carried out to test it. It is hoped also that the publication of the hypothesis at this time may stimulate interest in the field.

REFERENCES

Goebel, W. F., Beeson, P. B., and Hoaglund, C. L. (1939). *J. biol. Chem.*, **129**, 455.
Halbrecht, I. (1944). *Amer. J. Dis. Child.*, **68**, 248.
Hirsch, A. (1913). *Z. Kinderheilk.*, **9**, 196.
Kabat, E. A. (1949). *Bact. Rev.*, **13**, 189.
—— Baer, H., and Knaub, V. (1949). *J. exp. Med.*, **89**, 1.
Landsteiner, K., and Harte, R. A. (1940). Ibid., **71**, 551.
—— —— (1941). *J. biol. Chem.*, **140**, 673.
Levine, P., Burnham, L., Katzin, E. M., and Vogel, P. (1941). *Amer. J. Obstet. Gynec.*, **42**, 925.
Weech, A. A. (1950). *Advances in Pediatrics*, **2**, 346. Interscience Publishers Inc.
Wiener, A. S. (1948). *Ann. Allergy*, **6**, 293.
—— (1951). *J. Immunol.* In press.
—— Wexler, I. B., and Hurst, J. G. (1949). *Blood*, **4**, 1014.
Ylppö, A. (1913). *Z. Kinderheilk.*, **9**, 208.

THE OUTCOME OF MENTAL BREAKDOWN IN OLD AGE

BY

FELIX POST, M.B., M.R.C.P., D.P.M.

Physician, Bethlem Royal Hospital and Maudsley Hospital

The rising number of first admissions to mental hospitals is now widely recognized as being due to the increased frequency of mental disorders peculiar to the elderly, who constitute an increasing proportion of the total population. It is therefore important that the prospects of an elderly patient admitted to hospital with a mental disorder should be known regarding both the expectation of life and the likely duration of hospital stay. The following investigation has been designed to throw light on this problem.

Case Material and Immediate Outcome of Admission

Clinical and social data were analysed from the case records of all patients over 60 admitted to a mental observation unit in South London during February, March, April, and May, 1946. During this period 454 patients of all ages were admitted (211 men and 243 women), and the fact that 226 (105 men and 121 women) of these were over 60 demonstrates the size of the problem of psychiatric disorders in old age. The cases were followed while in the observation ward and after their transfer to a chronic sick ward, to a mental hospital, or to the Tooting Bec Hospital for Senile Dementia.

The immediate outcome of admissions to the observation unit is shown in Table I. This reveals a high death rate of male patients : 26 out of 105 men died within a few days or weeks of admission, while only 10 out of 121 women died during this period. Ten men and two women had been admitted in a confusional state arising as a terminal event in a serious physical illness, without previous evidence of mental ill-health.

TABLE I.—*Immediate Outcome of Admissions to a Mental Observation Unit (February to May, 1946)*

	Returned Home	Died	Admitted to			Total
			General Hospital	Mental Hospital	Tooting Bec	
Males ..	7	26	12	23	37	105
Females ..	11	10	1	32	67	121
Total ..	18	36	13	55	104	226

Diagnostic Grouping and Outcome of Illness

After the 12 patients with primarily physical disease had been excluded, the 214 (95 men and 119 women) admitted on account of increasing severity of their mental disorder were allocated to two broad diagnostic categories (Table II): 56 patients (26 men and 30 women) were suffering from essentially "functional" (schizophrenic or affective) psychoses, while 158 (69 males and 89 females) exhibited organic mental symptoms; all of the latter, except 4 with G.P.I., 5 with epileptic psychosis, 3 with alcoholic psychosis, 2 with psychosis due to subacute combined degeneration, and 1 each of psychosis due to vitamin deficiency and Paget's disease of the skull, showed senile or arteriosclerotic mental disorders. This organic group was subdivided into patients who in a setting of dementia exhibited symptoms of schizoid or affective colouring, and others who showed a simple dementing illness without positive psychotic symptoms.

TABLE II.—*Diagnostic Grouping and Outcome of 214 Cases*

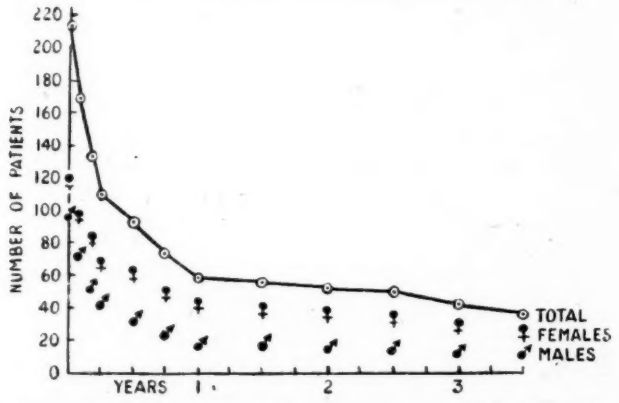
	No. Admitted	No. Dying under Hospital Care	No. Discharged	No. Remaining in Hospital
Males:				
Functional psychoses ..	26	9	13	4
Organic psychoses:				
Uncomplicated ..	34	28	2	4
With affective or schizoid colouring ..	35 } 69	21 } 49	12 } 14	2 } 6
Total	95	58	27	10
Females:				
Functional psychoses ..	30	6	17	7
Organic psychoses:				
Uncomplicated ..	54	31	14	9
With affective or schizoid colouring ..	35 } 89	15 } 46	9 } 23	11 } 20
Total	119	52	40	27
Both sexes:				
Functional psychoses ..	56	15	30	11
Organic psychoses:				
Uncomplicated ..	88	59	16	13
With affective or schizoid colouring ..	70 } 158	36 } 95	21 } 37	13 } 26
Total	214	110	67	37

The follow-up to December 31, 1949—that is, over three and a half years later—revealed a striking

difference in the discharge and death rates of the two groups. Of the patients presenting with functional psychoses only 27% died while in hospital, and 54% could be discharged, whereas of patients suffering from organic syndromes 60% died and only 23% left hospital. The discharge may in many cases have been against medical advice, but the patients must have shown improvement from the condition for which they had been sent to the observation unit. Within the organic group there was a higher death rate and lower survival rate of patients with simple dementia than of patients who exhibited affective or schizoid symptoms as well as dementia.

Duration of Stay in Hospital

Of the 214 patients admitted to the observation unit in the early part of 1946 (Table II), 110 were known to have died and only 37 had had continuous hospital care up to December 31, 1949; 67 had been discharged either from the observation ward or from the hospital to which they had been transferred. Thus only a small proportion of old people suffering from mental breakdowns occupy hospital beds for prolonged periods; furthermore, of the 67 patients who could be discharged 47 left hospital within less than three months after admission, and only five stayed for more than one year; 58 of the 110 deaths had occurred within the first three months from admission, and 92 within one year. The accompanying Graph depicts the rate at



Graph showing rate of decline in number of hospital beds occupied by 214 patients (95 men and 119 women).

which the number of patients in hospital diminishes and how it is halved within the first three months, and reduced to almost one-quarter within a year following admission.

Further Follow-up of Discharged Patients

Because of the preliminary nature of this study the difficult and costly business of a personal follow-up of each case was not undertaken. To supplement the information about readmission given by the hospitals concerned, a search was made among the records of the Board of Control and of the Mental Health Department of the L.C.C., and it was found that 16 of the 67 patients originally discharged had been readmitted to a mental hospital or observation ward. Eight of them were again returned to the community and seven were still in hospital on December 31, 1949. Some of these patients were readmitted on several occasions, but only one, with senile dementia, died while in hospital. A search through the register of deaths confirmed the expectation that a high proportion (not fewer than eight) of ex-patients had died in their homes or general hospitals, but identification of individuals was not certain enough in every case to provide reliable figures. Of 214 psychiatrically ill persons of over 60 admitted to an observation unit between February and May, 1946, 119 are known to have died, 44 were still in hospital, and 51 had not returned to hospital by December 31, 1949, the closing date of the investigation.

These figures express the outlook, after mental breakdown in old age, at its worst because of the unfavourable social status of most of our patients. They contrast with the results reported by Clow (1948) from a mental hospital in New York, where only patients regarded as recoverable and belonging to the higher income groups are accepted. He was able to follow up 228 of 365 patients aged over 60 for from 2 to 11½ years; only 35.1% of these were diagnosed as suffering from organic psychoses and 64.9% were considered to be "functional" cases. The overall mortality rate during stay in hospital was only 14.5%, whereas 24.1% of patients were regarded as recovered, 40% as improved, and 21.9% as unimproved. It is more appropriate to compare our figures with the follow-up of 683 patients over 65 admitted to an American State hospital (Camargo and Preston, 1945), where 85% were diagnosed as suffering from psychotic disorders due to organic cerebral disease, and 47% of all patients died during the first year following admission. At the end of three years 66% had died, 10% had been discharged, and 24% remained under hospital care.

Age Distribution and Mortality

The number of admissions during the eighth decade of life was slightly higher than during the seventh (Table III); thereafter it fell rapidly, and only four

TABLE III.—*Age Distribution and Mortality*

Age	No. Admitted			No. Discharged or Surviving			No. Dying in Hospital		
	M	F	Total	M	F	Total	M	F	Total
60–64 ..	18	17	35	10	13	23	8	4	12
65–69 ..	19	23	42	9	15	24	10	8	18
70–74 ..	20	27	47	9	17	26	11	10	21
75–79 ..	21	24	45	9	11	20	12	13	25
80–84 ..	11	14	25	0	7	7	11	7	18
85–89 ..	5	11	16	0	4	4	5	7	12
90–94 ..	1	3	4	0	0	0	1	3	4
Total..	95	119	214	37	67	104	58	52	110

patients were admitted over the age of 90. Up to the age of 75 the patients who died after admission were fewer than those who were discharged or survived in hospital during the follow-up period. Here again there was a difference between the sexes: a relatively larger proportion of women were found among the higher age groups, but the tendency to die rather than to survive following admission showed itself in the men 10–15 years earlier than in the women. The striking differences in the mortality of male and female patients noted during the original observation period were further demonstrated during the stay in long-term hospitals: over the whole period of hospital treatment, 58 of 95 (61%) men as against 52 of 119 (44%) women died; by contrast, more female patients (23% of those originally admitted) than males (11%) remained in hospital, while there was little sex-difference in the number of discharges (Table II). The higher death rate shown

by the men was not due to a greater incidence of organic cerebral disease among them—73% as against 75% in women.

Camargo and Preston (1945) also found with their State hospital cases that 73% of male patients had died during the three years after admission as against only 59% of the women. The greater number of women, their lower death rate, and their greater tendency to survive after a mental breakdown are findings which agree entirely with Sheldon's (1950) observations on old people in general : though they have a lower death rate, women show a much higher morbidity rate than men, who tend to "maintain a better physique," but their "hold on life is nevertheless brittle"; women have "in spite of increasing decrepitude . . . a power of sheer survival denied to the men."

Social Factors

In order to assess the importance of social factors in the causation and outcome of mental breakdown in our group of elderly people, only those patients were reviewed who had not a record of psychiatric treatment earlier in life. There were 83 men and 107 women who had maintained outward mental stability throughout life until they came up against the effects and problems of old age. As it is often said that mental decline in old age is hastened or even precipitated by increasing social isolation, the relationship between type of illness, marital status, and degree of social integration before admission to the observation unit was tabulated (Table IV).

TABLE IV.—*Type of Illness, Marital Status, and Degree of Social Integration of 190 Patients Without History of Psychiatric Illness Before the Age of 60*

	Males (83)						Females (107)					
	Living with Spouse, Relatives, Friends			Living Alone or in Institution			Living with Spouse, Relatives, Friends			Living Alone or in Institution		
	M.	W.	S.	M.	W.	S.	M.	W.	S.	M.	W.	S.
Functional psychoses ..	9	3	1	2	2	3	9	2	3	1	4	2
Organic psychoses ..	24	12	3	2	13	9	16	26	5	1	32	6
Total ..	33	15	4	4	15	12	25	28	8	2	36	8
	52			31			61			46		

M. = Married; W. = Widowed; S. = Single.

Widows seem more liable to develop organic psychoses : of the 86 females so affected 58 (67%) were widows, of whom over half had been living alone or in institutions; only 52% of a female control population were widows (Table V). With the men we do not find this association between proneness to organic mental illness and the widowed state, presumably because men tend to be widowed at a later age than women, and thus to remain in the married category well into a period of life during which dementing processes become increasingly common. The incidence of organic as opposed to functional psychoses is the same—three to one—in men living with their wives or relations, men living alone, and women belonging to a family group; only women living alone or in institutions show a higher proportion of organic disorders—over five cases to every one of functional psychosis.

TABLE V.—*Comparison of Marital Status of a Random Sample of Old People in Two London Boroughs (Rowntree, 1947) and of Patients Admitted to Mental Observation Unit*

	Males over 65		Females over 60	
	125 Men in Two London Boroughs	71 Men Admitted to Observation Unit	321 Women in Two London Boroughs	107 Women Admitted to Observation Unit
Married	67%	38%	28%	23%
Widowed	25%	39%	52%	60%
Single	8%	23%	20%	17%

A comparison was made between these patients and the normal old people in two London boroughs who were studied by the Rowntree Committee (1947). The observation-ward patients differ from old people living in the community in the proportions of married, widowed, and single individuals (Table V). With both sexes there are fewer patients in the married and more in the widowed state than is the case with the control population, and this fits in well with Sheldon's (1948) observation that mental impairment among elderly people was positively correlated with the widowed state Even more striking is the difference between the proportion of single old men in the control group (8%) and among male patients (23%). One might be tempted to conclude that men who failed to found a family earlier in life also failed to adjust to old age. Certainly, high physical vitality is often assumed to be correlated positively to the marriage rate : it was found in Germany that of 81 female and 43 male centenarians 80 women and 41 men had been married (Greeff, 1933). On the other hand, single old men are less likely than others to find a niche within the community where a certain amount of mental disturbance will be tolerated, and are thus more liable to be sent to public institutions and mental hospitals.

While only about 3% of the elderly population of this country have been estimated to live in institutions and homes for the aged (Sheldon, 1950), 17.4% of our patients had passed through public assistance institutions (22.5% of male and 14% of female admissions). Lewis (1946) demonstrated that in this country many aged and mentally disordered people are retained in these institutions : transfer to an observation ward may only mean that the already deteriorated inmate has become acutely disturbed in his behaviour. The fact that an elderly person enters an institution may therefore signalize not so much social failure due to bereavements and other environmental happenings as, quite often, social isolation on account of mental deterioration. When we compare the social status of members of the normal control group with that of patients admitted to the observation unit direct from their homes (Table VI), little difference is found between normal persons and

TABLE VI.—*Comparison of Domestic Status of Healthy Old People Living at Home (Rowntree, 1947) With That of Elderly Patients Admitted to a Mental Observation Unit*

	Males over 65			Females over 60		
	Living at Home	Adm. Obs. Unit from Home	Adm. Obs. Unit from Home or Institution	Living at Home	Adm. Obs. Unit from Home	Adm. Obs. Unit from Home or Institution
Living with spouse	56 (44·8)	27 (49·1)	27 (38·0)	63 (19·6)	26 (28·3)	26 (24·3)
Living with family or friends	43 (34·4)	17 (30·9)	17 (24·0)	164 (51·1)	35 (38·0)	35 (32·7)
Living outside family group	26 (20·8)	11 (20·0)	27 (38·0)	94 (29·3)	31 (33·7)	46 (43·0)
Total ..	125	55	71	321	92	107

Percentages in parentheses.

patients in respect of the proportion of socially isolated people to persons living either with their marital partners or friends and relations; the proportion of socially isolated individuals among the patients (and especially in the case of men) becomes strikingly higher only when subjects admitted from institutions are included in the comparison.

Persons admitted from institutions or from a lonely existence—for example, women outside a family group whom we have found to make up a large proportion of dementing patients (Table IV)—are also older as a group than patients who had remained socially integrated (Table VII). In contrast to the decline in numbers

TABLE VII.—*Relationship Between Age and Social Integration (190 Patients Without History of Mental Breakdown Before 60)*

Age	At Home with Spouse or Relations			Alone or in an Institution		
	M	F	Total	M	F	Total
60–64	8	8	16	4	1	5
65–69	12	14	26	6	5	11
70–74	11	16	27	5	11	16
75–79	13	12	25	7	12	19
80–84	4	5	9	7	9	16
85–89	3	4	7	2	7	9
90–94	1	2	3	—	1	1

with rising age among the sample drawn from the two London boroughs, which mirrors the age distribution of the country as a whole (*Annual Abstract of Statistics*, 1949), we find a relatively larger proportion of patients belonging to the higher age groups (Table VIII): in

TABLE VIII.—*Percentage Distribution by Age Groups of Old People Living in Two London Boroughs (Rowntree, 1947) and of Patients Admitted to an Observation Unit (No History of Mental Breakdown Before 60)*

Age:	60–64	65–69	70–74	75–79	80–84	85 and Over
Males:						
Elderly population of two London boroughs	—	40·0	37·6	15·2	4·8	2·4
Patients admitted to observation unit ..	—	25·4	22·5	28·2	15·5	8·4
Females:						
Elderly population of two London boroughs	24·6	21·8	28·4	14·0	8·4	2·8
Patients admitted to observation unit ..	8·4	17·8	25·2	22·4	13·1	13·1

other words, the patients, as a group, are older than the healthy elderly population, and by reason of their greater age alone are more vulnerable to social stresses.

Dayton (1940) and Pollock (1945) have demonstrated that the incidence of mental disorders in the population rises with increasing age, or, to quote Malzberg (1940), that "the probability of a mental disorder is a direct function of age." Consequently, where in our patients there appeared to be an association between mental breakdown and social isolation, the latter might have been not a cause but rather a symptom of mental impairment, or a complication which in its turn produced a further aggravation of the mental disorder. Certainly, the degree of social integration before admission had surprisingly little influence on the outcome of the mental breakdown (Table IX). The proportion of patients who died in the course of their illness was about the same, regardless of whether they had been living with friends or whether they had been admitted from a lonely existence or an institution. Among the patients who were discharged from hospital there was a slight

TABLE IX.—*Outcome of Admission to Mental Observation Unit in Relation to Domestic Status (190 Patients Without History of Mental Illness Before 60)*

	Males (83)		Females (107)		Both Sexes	
	Living Alone	Living with Relatives and Friends	Living Alone	Living with Relatives and Friends	Living Alone	Living with Relatives and Friends
Discharged	3 (10)	17 (33)	14 (30)	16 (26)	17 (22)	33 (29)
Remaining	5 (16)	4 (7)	13 (28)	13 (22)	18 (23)	17 (15)
Died ..	23 (74)	31 (60)	19 (42)	32 (52)	42 (55)	63 (56)
Total ..	31	52	46	61	77	113

Percentages are given in parentheses.

preponderance of men admitted from family care, but the position was reversed in the case of female patients. It may be noted in passing that all but one of the 17 patients who had been living away from their families before admission and who could be again discharged were taken into the homes of friends or relations.

It is plainly insufficient to assess the degree of social integration solely on the basis of marital and domestic status, as had to be done in the present study; an old person who is living within the family circle but is neglected may in actual fact feel much more lonely than one who lives alone but is frequently and regularly visited by his friends (Sheldon, 1948). Thorough social investigations, such as that by Lewis and Goldschmidt (1943) into the backgrounds of patients admitted to the Tooting Bec Hospital, demonstrate the overwhelming importance of social factors leading to admission to hospital. That social factors contribute to senile deterioration has been stressed in numerous publications during the last fifteen years, and this has helped to turn the psychiatry of old age away from fatalistic preoccupations with brain pathology and dementia into the field of social therapy. Many suggestions have been advanced for preventing or mitigating senile deterioration by social reforms and reorientations, and many claims made. It thus seems highly desirable to evaluate critically the role of social factors and their relation to the biological process of ageing in causing mental ill-health in old people.

Summary

Of 214 patients over 60 years of age admitted to a mental observation unit and followed up for three and a half years, 44 were still in hospital, 119 were known to have died, and 51 had not, after discharge, been readmitted under psychiatric care by the end of the follow-up period.

Only a small proportion of the old people studied occupied hospital beds for prolonged periods; the number of patients remaining in hospital was halved within the first three months and almost quartered within a year after admission.

The social status of the patients is compared with that of a sample of elderly people living in their own homes, and differences found in respect of marital state, social isolation, and previous necessity for institutional care are discussed.

In those suffering from mental disorder a higher mortality was found in elderly men than in elderly women. When the elderly patients were classified into two groups—those with symptoms secondary to cerebral degeneration and those with "functional" disorders without demonstrable cerebral disease—the former group showed the higher mortality and the latter a higher discharge rate. In the organic group, death within the period of observation occurred more often in those with simple dementia than in those in whom the dementia was associated with schizoid symptoms.

I wish to express my thanks to Professor Aubrey Lewis for his interest during this investigation and his helpful criticism in the drafting of the paper. My thanks are also due to Dr. O. W. Roberts, medical superintendent, Dulwich Hospital, for allowing me access to the case records, and to the physician-superintendents of numerous hospitals, as well as to Dr. the Hon. W. S. Maclay, Senior Commissioner, and Mr. F. W. Allen, of the Records Department of the Board of Control, and Mr. F. J. Spivey, of the Mental Health Department of the L.C.C., for their assistance with the follow-up of patients.

REFERENCES

Camargo, O., and Preston, G. H. (1945). *Amer. J. Psychiat.*, **102**, 168.
Clow, H. E. (1948). *N.Y. St. J. Med.*, **48**, 2357.
Dayton, N. A. (1940). *New Facts on Mental Disorders*. Baltimore.
Greeff, J. H. (1933). Quoted by A. L. Vischer in *Old Age*. London, 1947.
Lewis, A. (1946). *J. ment. Sci.*, **92**, 150.
— and Goldschmidt, H. (1943). *Sociol. Rev.*, **35**, 86.
Malzberg, B. (1940). *Social and Biological Aspects of Mental Disease*. New York.
Pollock, H. M. (1945). In O. J. Kaplan's *Mental Disorders of Later Life*. Stanford University.
Rowntree, B. S. (1947). *Old People*. London.
Sheldon, J. H. (1948). *The Social Medicine of Old Age*. London.
— (1950). *British Medical Journal*, **1**, 319.

PHAEOCHROMOCYTOMA OF ADRENAL GLAND, WITH SUSTAINED HYPERTENSION

BY

H. J. C. SWAN, M.B., B.S., M.R.C.P.
Lecturer in Physiology, St. Thomas's Hospital Medical School

Phaeochromocytoma is an uncommon cause of human hypertension. However, the clinical result which follows successful diagnosis and treatment is in itself good reason why every effort should be made to recognize the condition as early as possible.

The association of an adrenal medullary tumour with hypertension was probably first recognized by Labbé *et al.* (1922), although the occurrence of such tumours had been noted earlier. The condition was the subject of an able review by MacKeith (1944), who collected 152 cases from the earlier literature. The usual clinical syndrome ascribed to phaeochromocytoma then comprised paroxysmal hypertension, sweating, and a number of symptoms referable to overaction of the sympathoadrenal system. MacKeith recognized that some cases might resemble malignant hypertension and others essential hypertension, but did not enter into details. Green (1946), however, recognized that phaeochromocytoma might occur not infrequently in patients with sustained hypertension, and there was little to distinguish such cases from essential hypertension. In a series of 51 cases selected from the literature for their completeness of data, Green showed that intermittent hypertension was present in only 14, sustained hypertension being found in the other 37. The problem in the diagnosis of this condition is therefore twofold: first, to recognize the possibility that phaeochromocytoma is the cause underlying a story of paroxysmal disturbances in a patient with normal blood pressure when seen; and, secondly, to differentiate between the rare phaeochromocytoma with sustained hypertension and the common essential hypertension.

The clinical features of phaeochromocytoma with paroxysmal hypertension have been adequately described in the literature. MacKeith's (1944) paper gives most of the symptoms. If the possibility of such a condition is considered a correct diagnosis should frequently be made.

The second, perhaps more common, situation in which hypertension is sustained presents a difficult diagnostic problem. This has led to the development, in recent years, of a number of pharmacological tests to differentiate phaeochromocytoma with sustained hypertension from that with essential hypertension. In spite of the successful application of certain of these tests —notably the benzodioxane test (Goldenberg *et al.*, 1947) and the histamine test of Roth and Kvale (1945) —some disadvantages still attend their general use. In 1950 Smithwick *et al.* emphasized certain clinical features, unusual in essential hypertension, which were to be observed in cases of phaeochromocytoma. In addition, their observations suggest that the response to simple routine investigations on patients with sustained hypertension should reveal a substantial number of those patients in whom the hypertension is due to phaeochromocytoma.

It now seems clear that phaeochromocytomata contain a mixture of adrenaline and *nor*adrenaline in varying proportions (Holton, 1949; Goldenberg *et al.*, 1949) The vascular responses to these substances in the human have been reported in the literature (Goldenberg *et al.*, 1948; Swan, 1949; Barcroft and Konzett, 1949). The relationship of *nor*adrenaline to phaeochromocytoma has been discussed in detail by Barnett *et al.* (1950) Therefore this aspect of phaeochromocytoma will not be considered here. Suffice it to point out that the symptom-complex may vary according to the pressor substance which predominates in the circulation, but that knowledge of the effects of very large amounts of the amines in man is lacking at present.

The present paper has been stimulated by the occurrence of a case of unsuspected phaeochromocytoma in this hospital. The patient was thought to be suffering from hypertensive vascular disease and was to be submitted to splanchnic sympathectomy for that condition Details of the case are given below. The remainder of the paper is concerned with the diagnosis of phaeochromocytoma with sustained hypertension, the recent literature on phaeochromocytoma with paroxysmal hypertension having been summarized by Walton (1950)

Case Report

A 42-year-old Stock Exchange clerk was admitted to St. Thomas's Hospital on October 2, 1950. He had been a known hypertensive for eight years, but had come to hospital because of difficulty in using his right hand for one week. In 1941 he was called for service with the R.A.F. There is no record of the blood pressure at that time. In May, 1942, he complained of mild dyspnoea on exertion and frontal headache. The arterial blood pressure was found to be 170/110, and there was a cloud of albumin in the urine. Further investigation revealed red blood cells in the urine but no casts. The renal function was not impaired. The patient was invalided from the Service with the diagnosis of essential hypertension. On subsequent medical examinations by the Ministry of Pensions from 1943 to 1950 the arterial blood pressure varied between 180/115 and 210/130.

On admission the patient complained of tiredness, headache, and, as a major symptom, sweating. The latter symptom had troubled him from the age of 16, but at this time it had worsened considerably. The sweats were confined to the face and neck; the palms of the hands and the lower part of the body remained dry. Only rarely was axillary sweating noticed. When questioned about this symptom

after the diagnosis had been established the patient's wife recalled that frequently, on meeting a friend or in a similar situation, the patient had paled for a few moments, then, as his colour returned, beads of sweat would form on his forehead. Sweating also occurred without noticeable vasomotor changes. In addition he experienced frontal headaches of moderate severity. In the past year he had noticed some breathlessness on exertion, and at times had occipital headaches. In 1944 he had two "blackouts," and recently he had some difficulty in using his right hand.

On examination he was seen to be a thin, anxious person. His skin was moist, and at times beads of sweat appeared on the forehead. His mouth temperature was 99° F. (37.2° C.). No cardiac enlargement was discovered, but there was a loud first sound at the apex, with a soft systolic murmur. The aortic second sound was accentuated. The blood pressure in the right arm was 240/140. Examination of the arterial system revealed no abnormality. The optic fundi were considered normal. There was an indefinite weakness of the right hand. The diagnosis on admission was essential hypertension.

For the first week in hospital his temperature did not fall below 98° F. (36.7° C.) and fluctuated around 99° F.; the arterial blood pressure varied between 190/110 and 170/110 (Fig. 1). The blood urea on October 7 was 33 mg. per 100 ml., and there was no evidence of renal dysfunction.

The electrocardiogram was reported as indicating left ventricular strain. The heart showed slight left ventricular enlargement on screening. An intravenous pyelogram revealed no renal abnormality, but calcified opacities were noted above the left kidney. On October 11 a sedation test was performed. The response is shown in Fig. 2. As the ultimate prognosis was regarded as poor, a splanchnic sympathectomy was decided upon.

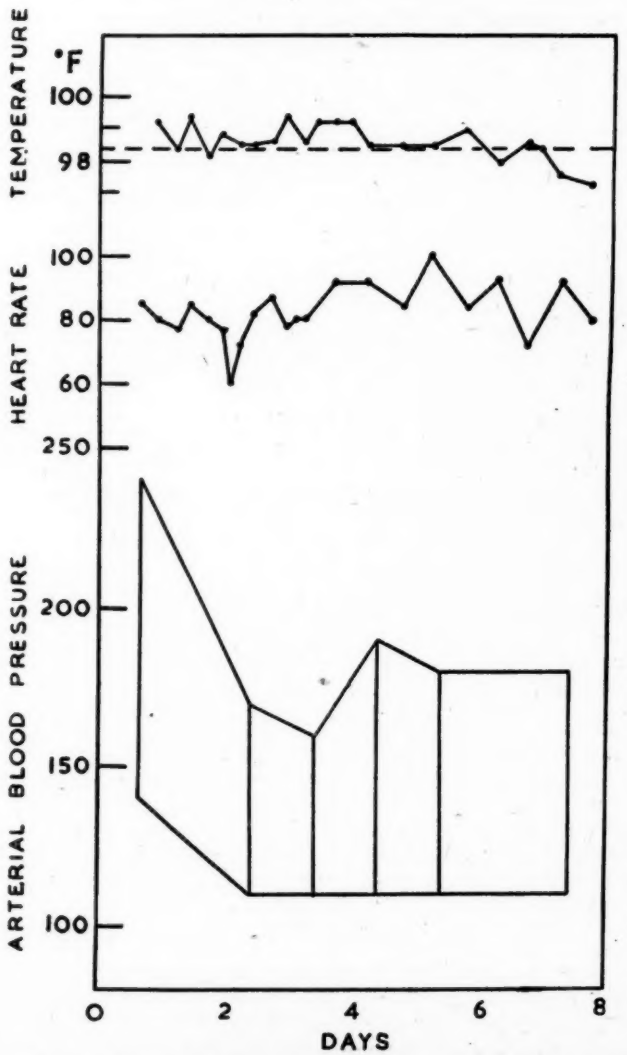


FIG. 1.—The mouth temperature, heart rate, and arterial blood pressure in the right arm recorded during the first week in hospital.

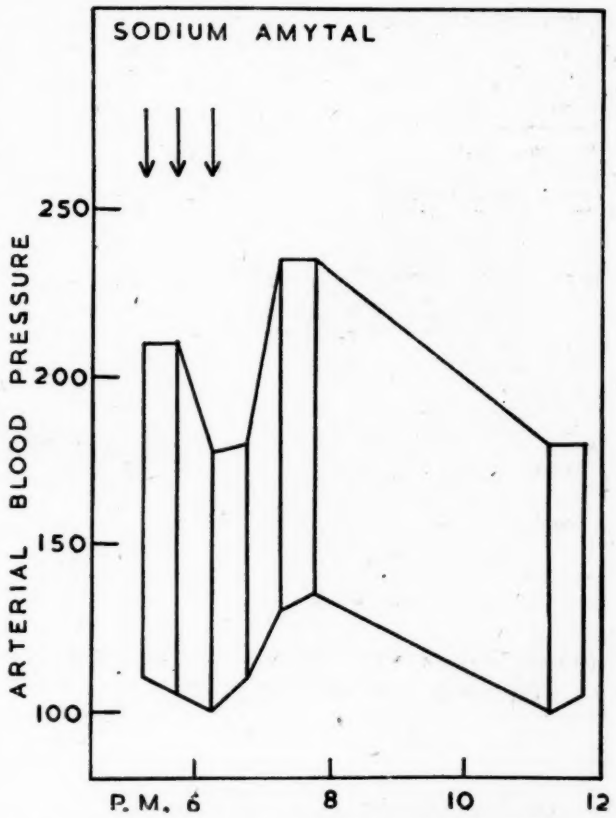


FIG. 2.—At each arrow 3 g. of sodium amytal was given. The arterial blood pressure response is shown.

On October 19 Mr. R. H. Boggon operated through a left lumbar incision. The anaesthetic (by Dr. W. D. Wiley) consisted of thiopentone (0.65 g.), gallamine triethiodide ("flaxedil") (160 mg.), gas, and oxygen. A tumour about 2 in. (5 cm.) in diameter was found in the left adrenal gland. On manipulation of this tumour the systolic blood pressure rose from 240 to 300 mm. Hg. Several large vessels running to the tumour were seen and ligated. The tumour was then removed. The blood-pressure changes during and after the operation, together with the measures taken to resuscitate the patient, are shown in Fig. 3. It was considered that the *nor*adrenaline infusion did much to prevent the occurrence of a fatal circulatory collapse (see Walton's (1950) case).

On the second post-operative day the patient developed abdominal distension and vomited several times. Continuous gastric suction through a Ryle's tube was instituted and 2 litres of glucose-saline was given intravenously. On October 22 the intravenous drip and gastric suction were discontinued and the patient improved steadily in the ensuing few days. During the first post-operative week the patient sweated continuously and to a greater extent than before his operation, but after the seventh day there was a notable diminution in sweating. Subsequently he developed a small venous thrombosis in the foot, but this cleared rapidly. A left-sided pleural effusion further prolonged his stay in hospital. On November 14 the blood pressure in the left arm was 125/80.

The tumour weighed 350 g. and was identified as a phaeochromocytoma of the adrenal medulla (Dr. J. L. Pinniger). "The tumour, which shows a well-marked alveolar arrangement in places, contains areas of necrosis

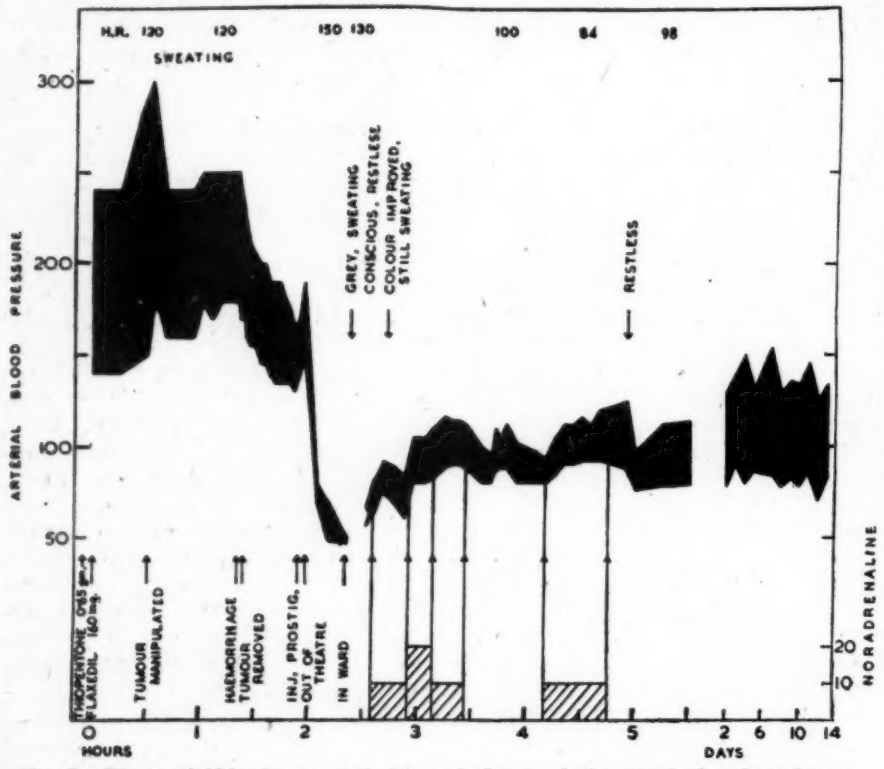


FIG. 3.—The arterial blood pressure during and after surgical removal of a phaeochromocytoma. The hatched squares indicate the rate of administration of L-*nor*adrenaline intravenously in μg. per minute. After 50 minutes the infusion of *nor*adrenaline was replaced by an infusion of saline, but as the systolic pressure fell below 100 mm. Hg the *nor*adrenaline was restarted. After a further infusion of *nor*adrenaline for 35 minutes, the pressure remained at a satisfactory level.

and of myxomatous degeneration. The cells and their nuclei show some variation in size."

A portion of the tumour was taken for assessment of adrenaline and *nor*adrenaline content. It was placed in a "deep-freeze" refrigerator at −4° C. Several hours afterwards it was realized that no HCl had been added to the tumour; 20 ml. of N/10 HCl was added 20 hours after the tumour had been removed, but the tissue was not melted or minced. Assay (Dr. Monica Mann) revealed 85 μg. of adrenaline and 875 μg. of *nor*adrenaline per g. of tumour tissue. Thus more than 90% of the biologically active substance present was *nor*adrenaline. The low amine content might have been due to the delay in acidifying or to the fact that a large amount of myxomatous, and therefore inactive, tissue was also present.

Comment on Case

From the patchy calcification, one is forced to conclude that the tumour had been present for a considerable time. It is of interest to note that the patient complained of sweating from the age of 16. He is known to have been hypertensive for at least eight years, and probably for longer; yet in spite of this duration of apparently severe sustained hypertension the arterial blood pressure reverted to normal levels after removal of the tumour. There was no evidence of arterial degeneration, and when last seen the arterial blood pressure was normal. However, Case 2 of Barnett *et al.* (1950) reverted to the hypertensive state one year after operation.

I have not as yet seen reported in the literature the use of *nor*adrenaline in the treatment of the post-operative collapse. In this case the blood pressure fell gradually for about 30 minutes after removal of the tumour. Just after he left the theatre (see Fig. 3) the blood pressure suddenly fell precipitantly. The patient was cyanosed and sweating freely: the respiration was shallow, the pulse rapid and thin. An infusion of L-*nor*adrenaline rapidly restored the blood pressure, and it was felt at the time that any reasonable blood-pressure level could have been obtained with this agent. The *nor*adrenaline caused the usual bradycardia and elevation of both systolic and diastolic blood pressures. The general appearance of the patient also improved remarkably. The tumour contained more than 90% *nor*adrenaline, and it is thought that the infusion acted as a temporary replacement of the tumour secretion which had been so rapidly removed; this allowed a more gradual restoration of the normal mechanisms of peripheral vasomotor tone.

Diagnosis of Phaeochromocytoma with Sustained Hypertension

The clinical features of a patient with phaeochromocytoma who exhibits sustained hypertension may in many respects be similar to those seen in essential hypertension. However, most of these patients present clinical features which may direct the physician's thoughts to the possibility that a tumour is present. Smithwick *et al.* (1950) point out that excessive sweating was a major symptom in 9 out of 10 cases of phaeochromocytoma observed by them, while the incidence in hypertensive vascular disease was but 2%. In my case the patient complained of excessive sweating for many years. The sweating is often generalized, and may continue for long periods. Its occurrence need not be related to any symptoms suggesting an outpouring of adrenal medullary substances. In addition to sweating, Smithwick *et al.* point out that a low-grade pyrexia often occurs. Those workers also noted an unduly high incidence of peripheral vasomotor phenomena in phaeochromocytoma. They commented on blanching of the fingers, discoloration of the skin of the hands and legs, and coldness of the hands and feet in 9 out of their 10 cases. Objective evidence of peripheral vasoconstriction may be obtained by the finding of a decrease in skin temperature and peripheral blood flow. In contrast these symptoms are rare in essential hypertension. Facial pallor was commented upon by the patient's wife in the case described above. In phaeochromocytoma with paroxysmal or sustained hypertension metabolic rate and fasting blood-sugar studies are of recognized value. It may be noted in passing that the finding of metabolic changes does not necessarily exclude the presence of a predominantly *nor*adrenaline-containing tumour, although the effect of *nor*adrenaline on metabolism is less than that of adrenaline. Undue lability of the arterial blood pressure would suggest the presence of a phaeochromocytoma. Wilkins *et al.* (1950) imply that the natural history of

the condition may be a progression from paroxysmal hypertension through "intermittent normotension" on to sustained hypertension. It would appear probable that a greater lability of blood pressure would occur in the intermediate stages of the natural course of that condition than in a case of essential hypertension. Hence observation of the day-to-day or hour-to-hour variations in blood pressure in the hypertensive patient would be of value.

Investigations directed to the cardiovascular system that can be easily undertaken may provide responses highly suggestive of phaeochromocytoma. The sedation test (Smithwick, 1948) performed in the above case did not give rise to the usual depressor response (Fig. 2). In the hypertensive subject a substantial fall in diastolic blood pressure commonly results, and, while an abnormal response in only one case is not significant, it is considered that the response of this patient to sedation was unusual and in the circumstances noteworthy.

Smithwick *et al.* (1950) found that in patients with hypertension due to phaeochromocytoma the responses to change in posture and to cold differed from the responses common in essential hypertension. For clinical purposes the cold-pressor (Hines and Brown, 1932) and postural tests are probably best combined as suggested by Smithwick (1948). Briefly, readings of blood pressure and pulse rate are taken at one-minute intervals for five-minute periods with the patient successively lying, sitting, and standing. The patient again lies down and a cold-pressor test is carried out in the horizontal position and, after an interval, with the patient sitting. In essential hypertension postural hypotension occurs only in 3% of cases and postural tachycardia in 15%. Of nine cases of phaeochromocytoma four had postural hypotension and five had postural tachycardia. A "negative" cold-pressor test is not common (22%) in essential hypertension, but seven of nine patients with medullary tumour had no significant rise in pressure to the cold stimulus. All of the above figures are taken from Smithwick *et al.* (1950). These results suggest that most patients with phaeochromocytoma would be distinguishable from those suffering from essential hypertension by the response to posture and cold. The tests can be performed simply, without complicated apparatus and without risk to the patient, and should also give further information on the vascular state in hypertensive disease.

Radiological studies have included intravenous pyelography, by means of which downward displacement of the kidney by the adrenal tumour may be seen. Barnett *et al.* (1950) reported three cases of phaeochromocytoma in which the tumour was demonstrated radiologically. Perirenal insufflation of air to demonstrate adrenal tumour may be dangerous and has resulted in fatalities. Calcification was present in the phaeochromocytoma removed from my case, and was noted on the lumbar skiagram.

Pharmacological Tests

The pharmacological tests suggested for phaeochromocytoma fall naturally into two groups. Certain substances cause a discharge of adrenal pressor substance into the circulation in patients suffering from phaeochromocytoma. Of these, histamine 0.025 mg. intravenously (Roth and Kvale, 1945), tetraethylammonium bromide (La-Due *et al.*, 1948), and methacholine chloride (Guarnêri and Evans, 1948) have been put to clinical trial. Their administration to a case of phaeochromocytoma precipitates an attack of hypertension, but this effect is in itself not without risk. The histamine test has had a more extensive trial than either of the others. It is probably best suited for the production of an attack in patients with paroxysmal hypertension but normotensive when seen. The rise in pressure with histamine is in excess of the pressor response to cold in patients with phaeochromocytoma. The converse is true in essential hypertension. Wilkins *et al.* (1950) recommend that a suitable hypotensive blocking agent be available when the test is performed, as a very great increase in pressure has been observed in patients with phaeochromocytoma. Smaller doses (0.01 mg. i.v.) of histamine may prove safer and yet give evidence of the presence of the tumour. It seems likely that, while the histamine test is of value in cases with paroxysmal hypertension, if the hypertension is sustained the results may be difficult to interpret and the side-effects dangerous.

The mechanism of action of the histamine test is not at present clear. The general explanation is that a reflex overproduction of adrenal medullary pressor substance results in response to the sudden hypotension. However, tetraethylammonium bromide also causes a similar response: this substance blocks the efferent pathway of the postulated reflex at the junction of preganglionic fibre with the cells of the adrenal medulla (Morrison and Farrar, 1949). Histamine may act by a direct stimulation of the adrenal medullary tissue.

The second group of substances is probably of greater value in the diagnosis of phaeochromocytoma with sustained hypertension. These agents are known as the "adrenergic blocking substances." Nickerson (1949) deplores the use of "adrenolytic" in this connexion, pointing out that, in general, the latter term is an incorrect description of the action of these agents. Dibenamine (Spear and Griswold, 1948), dihydroergokryptine (Wilkins *et al.*, 1950), "regetin" (Grimson *et al.*, 1949), and piperidyl-methyl-benzodioxane (933 F) (Goldenberg *et al.*, 1947) have been used in their capacity as adrenaline-blocking agents in the diagnosis of phaeochromocytoma. Of these substances 933 F, now known as "piperoxane," has had the widest and most successful trial. In this test 0.25 mg. of 933 F per kg. body weight is injected intravenously. A moderate rise in blood pressure occurs in essential hypertension, while a distinct fall in blood pressure of up to 15 minutes' duration is noted in phaeochromocytoma. Recently Goldenberg and Aranow (1950) have reviewed the findings with this test. They record positive reaction to 933 F in 59 patients with proved phaeochromocytoma and only three false negative reactions. There were no known false positive responses to the test. This report indicates the effectiveness of the benzodioxane test for phaeochromocytoma.

However, reports have appeared stressing the severe side-reactions which the drug may occasion in essential hypertension. Drill (1949) noted an excessive rise in blood pressure with 933 F in essential hypertension. Green and Peterson (1950) reported an encephalopathy under similar circumstances, and on one occasion I have used tetraethylammonium bromide to prevent the development of encephalopathic manifestations. Rosenheim (personal communication, 1950) has observed acute pulmonary oedema in a hypertensive patient to whom 933 F had been given. Pentamethonium iodide was given to reduce the excessive hypertension, and venesection had to be performed. Wilkins *et al.* (1950) also remarked on the variability of the subjective response to 933 F and reported severe reactions to 933 F in 8%

of hypertensive patients. Nor does the action of 933 F appear to be straightforward. Prunty and Swan (1950) were usually unable to cause a reduction in the hypertension resulting from continuous infusions of adrenaline or *nor*adrenaline in normal subjects on injection of 933 F; in one subject only, undergoing an infusion of *nor*adrenaline, a slight fall in pressure was obtained. These workers considered that in their experimental investigation the excitatory effect of this drug on the cardiac output balanced or outweighed its inhibitory effect on the periphery. In essential hypertension the excitatory effect on the cardiac output may be considerable while the peripheral (inhibitory) response is slight, and thus a rise in arterial blood pressure occurs in susceptible hypertensive patients. Prunty and Swan did not dispute either the diagnostic value of 933 F in phaeochromocytoma or its blocking action on certain aspects of adrenergic activity. They considered, however, that its mode of action was complex and could not be explained as a simple blockade of circulating adrenaline-like substances. Morison and Lissak (1938) indicated that 933 F might accelerate the inactivation of adrenaline.

Piperoxane is the most effective pharmacological agent at present in general use in the diagnosis of phaeochromocytoma, but the physician should have a suitable hypotensive agent at hand lest he encounter a severe hypertensive reaction. Regetin has not had as extensive a trial as piperoxane, but Grimson *et al.* (1949) report responses similar to those obtained with piperoxane in patients with essential hypertension, and in a case of phaeochromocytoma.

Recently a different approach to the problem of diagnosis has been made by Engle and Euler (1950). These workers have demonstrated the presence of large amounts of adrenaline-like substances in the urine of patients suffering from phaeochromocytoma. The catechols are not found in quantity in normal subjects or in patients with essential hypertension. However, estimation of the catechols in the urine is not simple and requires some experience in the handling of biological preparations. Without doubt this method would prove most valuable if the technical difficulties could be overcome and the biological assay reduced to simple methods. Details of the estimation of the catechols are contained in Euler's (1950) review on *nor*adrenaline. The method of concentration from the urine has also been described (Euler and Hellner, 1950).

The following steps are suggested to aid in the early diagnosis of phaeochromocytoma with sustained hypertension. Particular attention should be given to the patient with sustained hypertension who complains of excessive sweating. If there is no complaint of the symptom a direct inquiry may be made, as the patient might consider that his excessive sweating was merely a personal extravagance. Inquiry should also be made into the occurrence of vasomotor disturbances—cold fingers, pallor, or numbness. If possible both cold-pressor and postural tests should be carried out on all hypertensive patients, but if facilities are limited these tests might be performed on hypertensive patients who complain of excessive sweating. Evidence of altered sugar metabolism and increased metabolic rate should be sought and an attempt made to visualize an adrenal swelling by means of low penetration *x* rays. A benzodioxane test would confirm the presence of a biologically active tumour. The presence of adrenal pressor substances may be demonstrated in the urine if facilities for their estimation are available.

Summary

A case of phaeochromocytoma of the left adrenal gland in which the tumour was successfully removed is described. The post-operative collapse which supervened was overcome by an infusion of L-*nor*adrenaline. The arterial blood pressure, which had been persistently elevated for at least seven years, reverted to normal levels. In retrospect certain clinical features are noted which might have suggested the post-operative diagnosis.

The diagnosis of phaeochromocytoma with sustained hypertension is discussed.

Acknowledgment is made to those mentioned in the text who were concerned in the management of the case. I have to thank Dr. J. S. Richardson for permission to publish the case records and for kindly reading the manuscript. Dr. R. S. Duff and Miss Weddell gave valuable assistance.

REFERENCES

Barcroft, H., and Konzett, H. (1949). *J. Physiol.*, **110**, 194.
Barnett, A. J., Blacket, R. B., Depoorter, A. E., Sanderson, P. H., and Wilson, G. M. (1950). *Clin. Sci.*, **9**, 151.
Drill, V. A. (1949). *New Engl. J. Med.*, **241**, 777.
Engle, A., and Euler, U. S. von (1950). *Lancet*, **2**, 387.
Euler, U. S. von (1950). *Ergebn. Physiol.*, **46**, 261.
—— and Hellner, S. (1950). *Acta physiol. scand.* In press.
Goldenberg, M., and Aranow, H. (1950). *J. Amer. med. Ass.*, **143**, 1139.
—— Faber, M., Alston, E. J., and Chargaff, E. C. (1949) *Science*, **109**, 534.
—— Pines, K. L., Baldwin, E. de F., Green, D. G., and Roh, C. E. (1948). *Amer. J. Med.*, **5**, 792.
—— Snyder, C. H., and Aranow, H. (1947). *J. Amer. med. Ass.*, **135**, 971.
Green, D. M. (1946). Ibid., **131**, 1260.
—— and Peterson, E. M. (1950). Ibid., **142**, 408.
Grimson, K. S., Longino, F. H., Kernodle, C. E., and O'Rear, H. B. (1949). Ibid., **140**, 1273.
Guarneri, V., and Evans, J. A. (1948). *Amer. J. Med.*, **4**, 806.
Hines, E. A., and Brown, G. E. (1932). *Proc. Mayo Clin.*, **7**, 332.
Holton, P. (1949). *J. Physiol.*, **108**, 525.
Labbé, M., Tinel, J., and Doumer (1922). *Bull. Soc. méd. Hôp. Paris*, **46**, 982.
La-Due, J. S., Murison, P. J., and Pack, G. T. (1948). *Ann. intern. Med.*, **29**, 914.
MacKeith, R. (1944). *Brit. Heart J.*, **6**, 1.
Morison, R. S., and Lissak, K. (1938). *Amer. J. Physiol.*, **123**, 404.
Morrison, J. L., and Farrar, C. H. (1949). *Proc. Soc. exp. Biol. N.Y.*, **71**, 235.
Nickerson, M. (1949). *Pharmacol. Rev.*, **1**, 27.
Prunty, F. T. G., and Swan, H. J. C. (1950). *Lancet*, **1**, 759.
Roth, G. M., and Kvale, W. F. (1945). *Amer. J. med. Sci.*, **210**, 653.
Smithwick, R. H. (1948). *Amer. J. Med.*, **4**, 744.
—— Greer, W. E. R., Robertson, C. W., and Wilkins, R. W. (1950). *New Engl. J. Med.*, **242**, 252.
Spear, H. C., and Griswold, D. (1948). Ibid., **239**, 736.
Swan, H. J. C. (1949). *Lancet*, **2**, 508.
Walton, J. N. (1950). Ibid., **1**, 438.
Wilkins, R. W., Greer, W. E. R., Culbertson, J. W., Halperin, M. H., Litter, J., Burnett, C. H., and Smithwick, R. H. (1950). *Arch. intern. Med.*, **86**, 51.

A report in the *Daily Telegraph* of Thursday, February 22, notes that one London dentist has received fees totalling £20,516 net for less than a year's work under the National Health Service. The sum represents his gross salary for the period April 1, 1950, to February 15 this year, after deduction of superannuation and other special contributions, but 52% is reckoned by the Ministry of Health as likely to be expenses. Even so, this means that the man in question has an earned income of over £10,000, since he has not reported having any assistant. It is the highest income yet experienced in the area of the London Executive Council, which paid an average of £3,000 for the last 10 months to the 1,056 dentists under agreement in the county of London. In the same period 2,179 general practitioners received an average of £936.

TWO CASES OF PHAEOCHROMOCYTOMA

BY

K. V. CROWTHER, M.B., B.Ch., B.Sc.

(From the Bridgend General Hospital and the Department of Pathology and Bacteriology, Welsh National School of Medicine, Cardiff)

Phaeochromocytomata are comparatively rare tumours, but the number of cases reported is increasing rapidly owing to clarification of the clinical picture and the diagnostic use of adrenolytic drugs.

Two cases are described here. In the first, as a result of radiological investigation, a malformed kidney was thought to be the cause of hypertension. An unsuspected phaeochromocytoma was present, however, and death occurred shortly after operation. In the second case the diagnosis was correctly made by clinical and biochemical methods, and the tumour was successfully removed.

Case 1

A man aged 24 was admitted to Cardiff Royal Infirmary complaining of attacks of headache, nausea, and vomiting, with blurring of vision of 16 years' duration. For this period he had suffered from postural giddiness. He had sweated excessively for the past nine years, and had had a dull pain in the right loin for five years. For two years before admission he had complained of dyspnoea and palpitation on moderate exertion.

He was well built and looked healthy. His pulse was normal in rate and rhythm. There was no cardiac enlargement either clinically or radiologically, or any signs of cardiac failure. The blood pressure was variable, ranging between 150/100 and 190/135 mm. Hg. It was found that moderate exertion, such as polishing a floor for 10 minutes, produced a rise of blood pressure from the lower levels to 180/135, and that this rise was associated with severe incapacitating headache. The pressure was raised both in the arms and in the legs. Apart from hypertension, the only abnormal physical sign was a slight resistance to palpation in the right loin.

The blood showed a persistent leucocytosis of about 15,000 per c.mm. The urine contained a trace of albumin, the blood urea was 20 mg. per 100 ml., and the urea-clearance test gave a normal result.

Intravenous and retrograde pyelography showed a normal right pelvis, but failed to outline the pelvis of the left kidney. In view of this unilateral abnormality it was decided to explore the left kidney. At operation the kidney was found to be small (68 g.). The upper pole was reasonably well developed, but the lower pole was shrunken and fibrosed. The pelvis was practically obliterated. This kidney was considered to be congenitally deformed. As it was thought to be the possible cause of the hypertension, it was removed. During the operation the patient collapsed, the blood pressure fell, pulmonary oedema developed, and he died in a few hours.

At necropsy the heart weighed 415 g., and showed left ventricular hypertrophy. The lungs were grossly oedematous and microscopically showed bronchopneumonia. The right kidney was normal (170 g.). The right adrenal gland was replaced by a rounded encapsulated tumour about 8 cm. in diameter and weighing 220 g. (Fig. 1). On section it was found to be composed of a pink, firm peripheral zone about 2 cm. thick, and a pale-green central portion which was soft and gelatinous. Microscopically, it was a typical phaeochromocytoma with large irregular polyhedral cells containing brown pigment. The centre of the tumour was necrotic.

Biological assay of the tumour was undertaken within 24 hours of death, by the effect of an extract on isolated rabbit gut, on frog's heart, and on the blood pressure of a cat. It was concluded that the tumour contained a mixture of *noradrenaline* and adrenaline in the proportions of 10 to 1.

Case 2

A married woman aged 29 was admitted to Bridgend General Hospital on May 11, 1950, from the antenatal clinic because of hypertension and albuminuria. She had been pregnant twice before. Since January, when she was four months pregnant, she had suffered from severe frontal and occipital headaches associated with throbbing pain in the temples, sweating, and coldness of the hands and feet. The attacks usually occurred on rising in the morning and on retiring to bed at night, and could be brought on by exertion. They were often severe enough to cause retirement to bed for a few hours or for the rest of the day. Bending or other changes of posture did not precipitate an attack.

FIG. 1.—Tumour and right kidney. Case 1.

The patient also complained of vomiting a small amount of bile-stained fluid every morning since her pregnancy began. She had not experienced pain in the epigastrium, chest, or lumbar region, dizziness, vertigo, tingling of the feet, cramps in the legs, attacks of sneezing, or urinary symptoms, all of which have been described in cases of phaeochromocytoma.

There had been no significant illness during childhood except for bilious attacks, which had ceased at the age of 14. During the sixth month of her first pregnancy in 1947 she developed swelling of the face and ankles, which was associated with headaches. She was admitted to hospital, where her blood pressure was found to be 170/120. The urine contained albumin, and the blood urea was 51 mg. per 100 ml. Two days later her blood pressure was recorded as 210/150. A diagnosis of chronic nephritis was made, and the pregnancy was terminated with the delivery of a macerated foetus of 3½ lb. (1.6 kg.). The patient then lost her sight for a period of two months, and on recovery was discharged from hospital; her blood pressure was then 140/100.

Two years later she was again pregnant, but experienced no trouble until the birth of a premature stillborn hydrocephalic male child. Her blood pressure was then 134/104.

On admission for her present confinement the blood pressure was 180/120. Two days later it was 140/90, but during that evening she complained of headache, perspired freely, and her blood pressure rose to 180/130. Labour was induced, and on May 19 a macerated foetus weighing 5¼ lb. (2.4 kg.) was delivered. For the next week attacks of perspiration recurred, and the blood pressure ranged between 150/90 and 180/146.

On the seventh day of the puerperium she was pale, cold, and sweating. Her face was puffy, but there was no oedema elsewhere. Her temperature was 99.4° F. (37.4° C.), and pulse 112 and regular. The heart was not enlarged; a systolic murmur was heard at the apex. The blood pressure

was 125/90 at the right arm and 140/110 at the left arm. The right kidney was easily palpable. The fundi showed slight blurring of the disk margins, with small discrete exudates in the macular regions. In the right upper temporal quadrant was a patch of pigment. No other abnormal signs were detected.

The urine contained albumin, sugar, red and white blood cells, and hyaline and granular casts. Culture of the urine yielded a growth of coliform organisms. The blood count was normal. The blood urea was 40 mg. per 100 ml.; the urea concentration and urinary dilution tests gave normal results. The fasting blood sugar was 140 mg. per 100 ml., and the glucose-tolerance curve rose to 230 mg. per 100 ml. in 30 minutes after the administration of 50 g. of glucose, remaining at this level for two and a half hours.

The blood W.R. and Kahn test were negative. The electrocardiographic tracing followed a normal pattern. The radiologist's report was: "Straight *x*-ray film of the abdomen shows that the right kidney is ptosed and lies with its upper pole at the level of L 3 and its lower pole at the level of the lower border of L 5. Diffuse uneven calcification the size of a grape is seen at the level of L 1–2. The lateral view shows this calcification to be situated at the anterior surface of the body of L 2. I.V.P. confirms the ptosis of the right kidney and suggests rotation. No lesion is seen in either kidney or ureters, and the bladder shadow is normal. The appearances are consistent with the clinical diagnosis of suprarenal tumour, such as a phaeochromocytoma, displacing the right kidney caudally and located by a contained focus of calcification." (Fig. 2.)

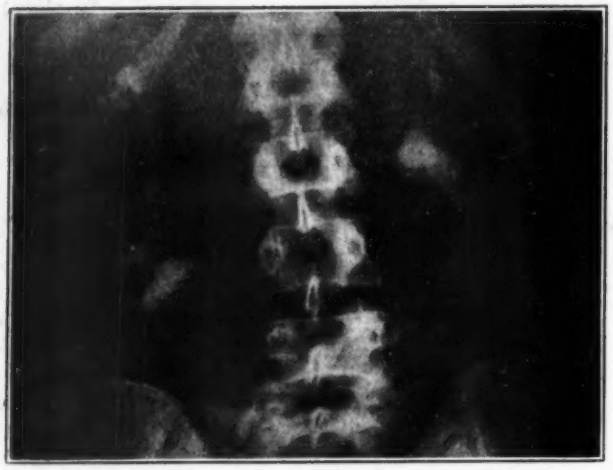


FIG. 2.—Case 2. Pyelogram showing focus of calcification in tumour and ptosed right kidney.

A diagnosis of pyelonephritis and phaeochromocytoma having been made, the former was treated with sulphonamides, and, using the Goldenberg technique, an attempt was made to confirm the diagnosis of an adrenal medullary tumour, using 933 F (2-1(1-piperidyl-methyl)1:4-benzodioxane hydrochloride). This drug is now marketed under the trade name of "piperoxane hydrochloride."

The dose of the drug was calculated from a weight and height table supplied by the makers (8 ml. of 0.2% solution), and was introduced into an intravenous saline drip after the blood pressure had stabilized at a high level. There was an immediate fall from 240/160 to 150/100. The effect lasted for about five minutes, when the pressure regained its former high level (Fig. 3).

It was decided that exploration of the right adrenal gland was justified. "Eucortone," 4 ml. daily for two days, was given pre-operatively.

Operation.—On June 29 Mr. D. B. Foster performed the operation, the anaesthetist being Dr. A. H. Musgrove. The patient was induced with thiopentone and gallamine triethiodide ("flaxedil") and maintained with gas, oxygen, and intravenous pethidine. A right thoraco-dorsal incision was made over the tenth rib and continued to the abdomen. The tenth rib was removed and the pleura opened. The diaphragm was incised and a tumour of the right adrenal was found. On the surface of the tumour were

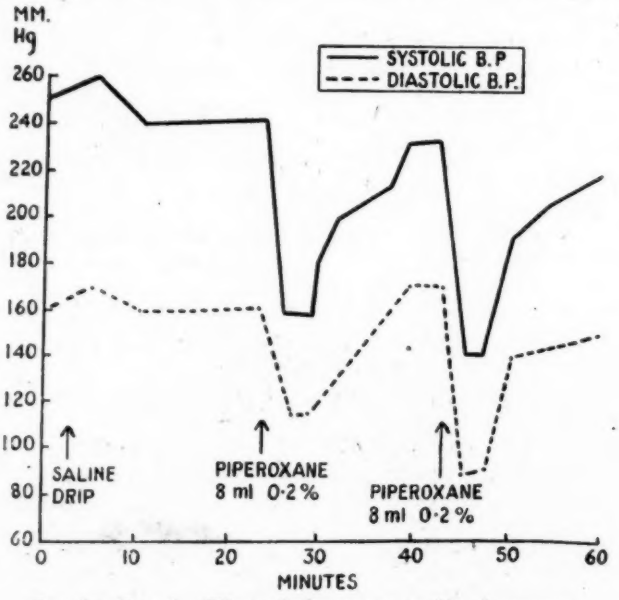


FIG. 3.—Case 2. Effect of piperoxane on blood pressure.

many large veins running to the diaphragm and to the inferior vena cava. The tumour was removed. The contralateral adrenal and both kidneys appeared to be normal.

During the operation the blood pressure was recorded every two minutes, and 5 ml. of 0.2% solution of piperoxane was given by means of an intravenous saline drip whenever the diastolic pressure exceeded 150 mm. Hg (Fig. 4). When the veins from the tumour were clamped and ligated, the blood pressure fell sharply from about 250/170 to 75/50. In order to minimize this fall 5 min. (0.3 ml.) of adrenaline hydrochloride solution 1:1,000 was repeatedly given into the drip. On return to the ward the blood pressure was 70/50.

Post-operatively the patient was given adrenaline in oil, 1 ml. intramuscularly every six hours for two days, and eucortone, 2 ml. daily for two days. The blood pressure

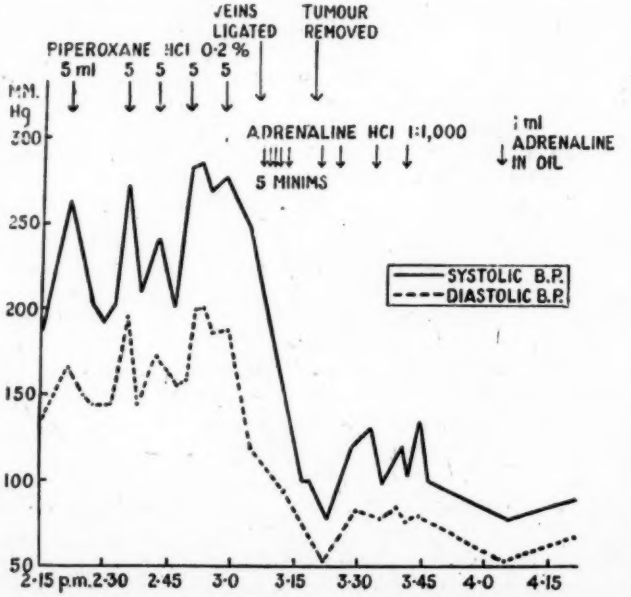


FIG. 4.—Case 2. Blood pressure during operation.

quickly rose to 110/70 and remained at this level until discharge from hospital on July 20. The fundi were then normal in appearance.

Repeated examination of the urine showed no abnormal constituents, the glucose-tolerance curve returned to a normal shape, and the calcification seen radiologically in the abdomen was no longer present.

The tumour was grey in colour, with a smooth, tough capsule, and measured 9 by 9 by 6 cm. (weight 360 g.). Internally it was soft and gelatinous, with a broad mottled haemorrhagic peripheral zone occupying the bulk of the tumour. At its centre was pale-green translucent material about 1.5 cm. in diameter and a bright yellow calcified body about 2 cm. in diameter (Fig. 5). It bore a very close resemblance to the tumour of Case 1 both microscopically and macroscopically.

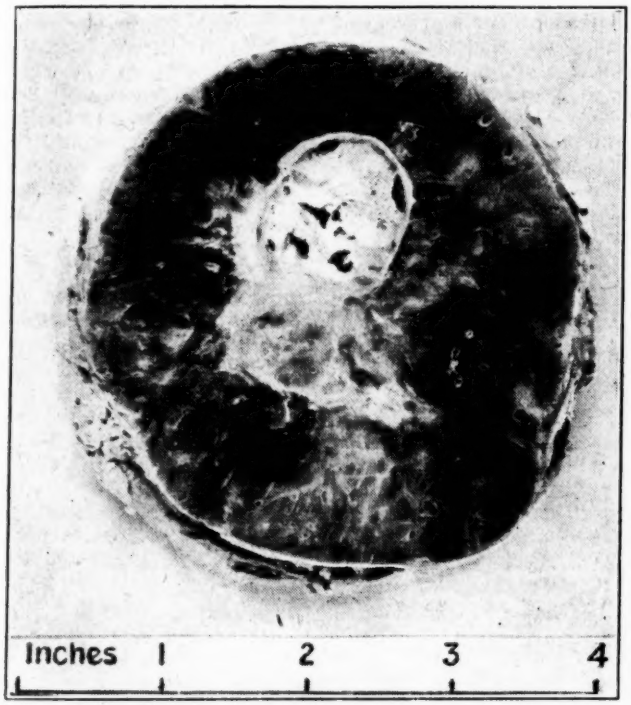


FIG. 5.—Case 2. The tumour.

Discussion

The diagnosis of a phaeochromocytoma may be very easy in the presence of paroxysmal hypertension accompanied by throbbing headache and sweating, but not every patient presents so obvious a syndrome. The hypertension may be sustained, the patient may be seen *in extremis* during the first paroxysm, or the condition may simulate Addison's disease (Cole, 1950).

Sweating is an important and well-recognized symptom. This would be difficult to explain on the previously held view that the sweat glands are entirely cholinergic. Most textbooks of physiology in fact still teach that this is so. However, Haimovici (1948) has shown that these glands in man have both a cholinergic and an adrenergic supply, and the sweating in phaeochromocytoma is thus explained.

The differential diagnosis includes a large number of conditions, and MacKeith (1944) has listed the following: essential hypertension, lead-poisoning, eclampsia, tabes dorsalis, aortic reflux, angina pectoris, thalamic tumour, hyperthyroidism, diabetes mellitus, peptic ulcer, chronic nephritis, polyarteritis nodosa, surgical shock, migraine, cerebral tumour, cardiac neurosis, and anxiety state.

In Case 1 a diagnosis of hypertension due to unilateral renal disease was made because of the exceedingly rare combination of a phaeochromocytoma and a congenital deformity of the contralateral kidney.

When the second patient was first seen the blood pressure was considered to be unequal in the arms; but this was not confirmed at subsequent examinations, and no doubt was the result of the rapid rise in the pressure, due to emotional causes, during the examination. Of particular value in the diagnosis were the palpable kidney, the paroxysmal hypertension, the cold sweating, the throbbing headache, the glucose-tolerance curve, and the *x*-ray findings.

The diagnosis of phaeochromocytoma has been made much easier by the use of adrenolytic drugs, of which the best known are "dibenamine" and those derived from dioxane, which were first investigated by Fourneau and Bovet in 1935.

Dibenamine (N,N-dibenzyl-beta-chloroethylamine hydrochloride) is structurally related to the nitrogen mustards. It has a prolonged action of 24 hours or more. Unfortunately we were not able to use it, since it is not at present available in this country, but it has been widely used in America (Spear and Griswold, 1948).

Of the dioxane derivatives the best known is 933 F. Structurally it somewhat resembles adrenaline and presumably acts by competing with adrenaline at the nerve-endings. Its effect lasts for a few minutes only.

Goldenberg *et al.* (1947) suggest its prophylactic use during the notoriously hazardous operations on these tumours. Of 64 patients operated upon before the use of adrenolytic drugs, 12 died (mortality rate 19%) (*B.M.J.*, 1949). In addition, several cases are reported of death during anaesthesia for other operations, or during parturition, when the tumour was unsuspected.

Bartels and Cattell (1950) consider that if a hypertensive crisis arises during any operation the adrenal areas should be explored, if this can be done conveniently, and adrenolytic drugs should be given, or the operation should be terminated. These authors are also of the opinion that collapse is not due to a diminution in the supply of adrenaline but is a result of left ventricular failure due to excess of circulating adrenaline, and may occur at any time before or during the removal of the tumour. They assert that the only measures necessary during the operation for removal of a tumour are the administration of an adrenolytic drug and the adoption of the Trendelenburg position. With this opinion we are in agreement, and it is probable that the administration of adrenaline and eucortone was unnecessary.

Summary

Two cases of phaeochromocytomata are described: the first was associated with a congenital abnormality of the contralateral kidney. Clinically the latter was thought to be the cause of the hypertension from which the patient was suffering.

In the second case the diagnosis was made clinically and was confirmed by the Goldenberg test, using piperoxane. Calcification in the tumour was demonstrated by radiography.

The blood pressure was recorded at frequent intervals during the operation for removal of the tumour in the second case and was controlled by piperoxane and adrenaline.

I wish to express thanks to Professor J. Gough and Dr. F. L. Dyson for help and advice; to Dr. S. D. P. Graham for the assay of the tumour; and to Dr. K. E. Barlow for the radiological report.

BIBLIOGRAPHY

Bartels, E. C., and Cattell, R. D. (1950). *Ann. Surg.*, **131**, 903.
Biskind, G. R., Meyer, M. A., and Beadner, S. A. (1941). *J. clin. Endocrinol.*, **1**, 113.
British Medical Journal (1949). **1**, 1131.
Cole, Leslie (1950). *Brit. Heart J.*, **12**, 232.
Goldenberg, M., Snyder, C. H., and Aranow, H. (1947). *J. Amer. med. Ass.*, **135**, 971.
Haimovici, H. (1948). *Proc. Soc. exp. Biol., N.Y.*, **68**, 40.
MacKeith, R. (1944). *Brit. Heart J.*, **6**, 1.
Reid, T. M., and Salm, R. (1949). *British Medical Journal*, **1**, 1116.
Spear, H. C., and Griswold, D. (1948). *New Engl. J. Med.*, **239**, 736.

A CASE OF ADRENAL PHAEOCHROMOCYTOMA

BY

J. F. PANTRIDGE, *M.C.*, M.D., M.R.C.P.

AND

M. McC. BURROWS, M.B.

(*From the Belfast City Hospital*)

The first case of chromaffin tumour of the adrenal medulla correctly diagnosed and successfully removed was reported by Shipley (1929). Between 1929 and 1947 these tumours have been successfully removed in some 44 cases (Hatch *et al.*, 1949). The object of this communication is to record the occurrence of a phaeochromocytoma with somewhat unusual features and its successful removal.

Case Report

The patient, a widow aged 66, had suffered irregularly from "peculiar attacks" for at least seven years. Each attack began with epigastric discomfort associated with eructation of gas and sometimes with retching. These symptoms were quickly followed by a feeling like an electric shock in the limbs, back of the neck, and back of the head. The patient felt warm during the attacks, although she had noted that her hands became blue. The attacks occurred in episodes, each lasting two to four months. There had been long free periods, the longest being nearly two years. During an episode there were four to seven attacks each week. For the past two years the attacks had been associated with "very rapid beating of the heart."

On examination the patient was found to be intelligent and co-operative. There was no cyanosis, oedema, or apparent rise in the jugular venous pressure. The pulse was 84 and regular, and the blood pressure 140/80 mm. Hg. There was clinical evidence of cardiac enlargement, the apex beat being in the sixth intercostal space in the anterior axillary line. The mitral first sound was split. Examination of the respiratory system revealed nothing abnormal. The liver edge was palpable 1 in. (2.5 cm.) below the right costal margin. A swelling, thought to be a palpable right kidney, was found in the right hypochondrium. Examination of her nervous system revealed nothing relevant.

The patient was seen during an attack on the day after admission. She appeared very apprehensive. The face was flushed, the limbs were trembling, and the hands were cold and cyanosed. The pulse was 150 and regular, and the blood pressure 270/170. Subjective symptoms lasted only 15 minutes. Within half an hour the blood pressure had fallen to 120/80, and the pulse rate had returned to normal. The variations in the blood pressure, spontaneous and induced, during the patient's pre-operative stay in hospital are shown in Fig. 1.

Investigations

An electrocardiogram obtained during her first attack in hospital showed sinus tachycardia, rate 150. The next day there was a sinus rhythm, rate 55. The standard unipolar limb and precordial leads were regarded as normal. The basal metabolic rate was − 10%, and the blood cholesterol 190 mg. per 100 ml. Radiography and fluoroscopic examination of the chest revealed moderate enlargement of the left ventricle; the lung fields were clear. An intravenous pyelogram showed good excretion on both sides, with normal calices and pelves. The right kidney appeared to lie rather low. The blood urea was 44 mg. per 100 ml.; W.R. negative; fasting blood sugar was 91 mg. per 100 ml., 105 mg. during an attack.

Injection of histamine, 0.05 mg., caused a rise in blood pressure, but did not produce tachycardia or any

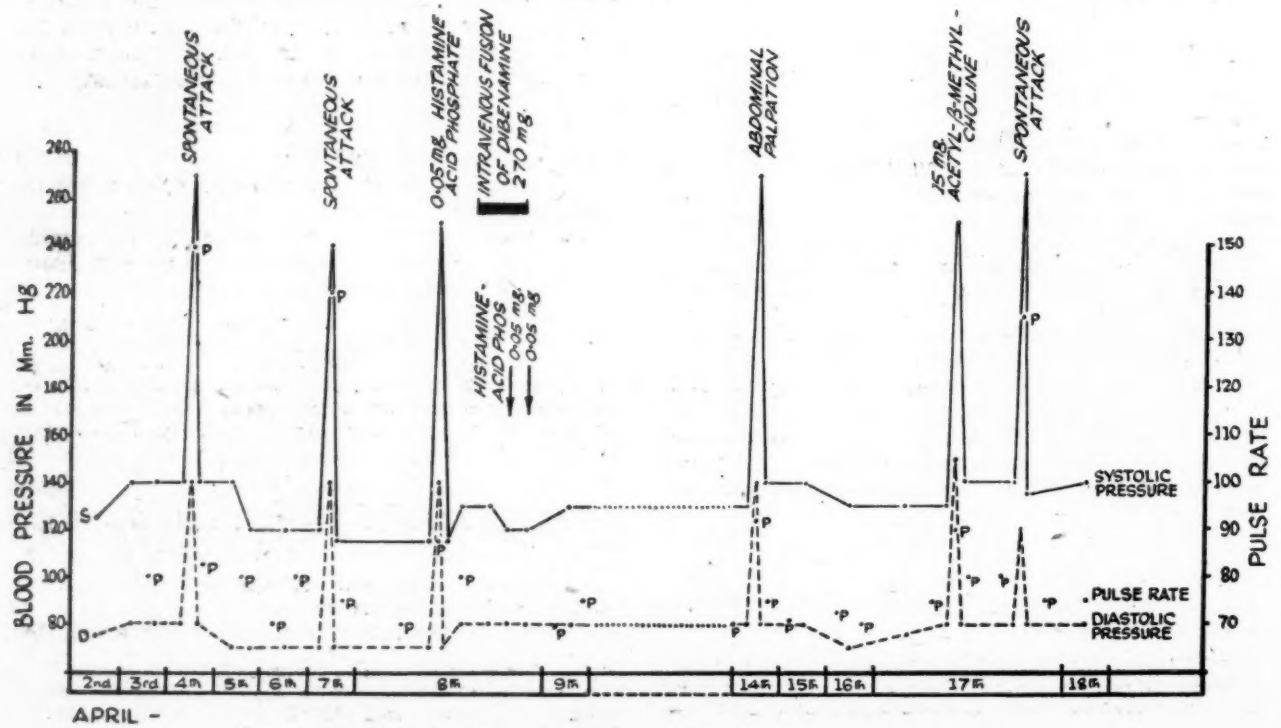


FIG. 1.—Blood-pressure readings and pulse rates before operation.

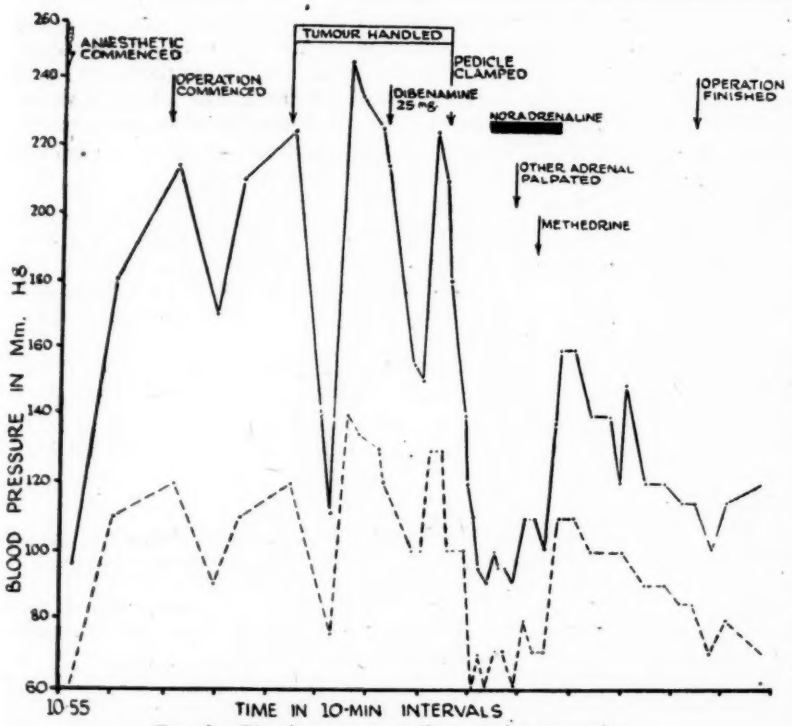


FIG. 2.—Blood-pressure readings during operation.

of the symptoms associated with a spontaneous attack. Palpation of the right renal region was on one occasion followed by a marked but symptom-free rise in blood pressure. The injection of histamine, 0.05 mg., following the intravenous infusion of "dibenamine," 270 mg., failed to cause a rise in blood pressure. (See Fig. 1.)

The clinical history and the attack suggested the presence of a chromaffin-tissue tumour. It was thought that the tumour was arising from the right adrenal medulla, since palpation of the swelling in the right renal region on one occasion caused a rise in blood pressure. Surgical exploration was therefore advised, and the tumour was found and removed. The left adrenal gland was normal.

Progress

The variations in blood pressure during the operation are shown in Fig 2. The alarming rise in pressure which occurred on handling the tumour was controlled by the intravenous injection of dibenamine 25 mg. It was considered that this amount of dibenamine would not interfere with the action of *nor*adrenaline, should the latter be necessary to combat hypertension following removal of the tumour. A profound fall in pressure occurred immediately after clamping of the pedicle of the tumour. This was controlled by intravenous *nor*adrenaline and intramuscular "methedrine" 20 mg. During the 19-minute period after clamping of the tumour pedicle 40 ml. of a solution containing 10 µg. of *nor*adrenaline per ml. was given by intravenous injection.

A *nor*adrenaline drip was started half an hour after operation. The rate of flow was varied so that the systolic blood pressure was not allowed to fall below approximately 90 mm. Hg. In the 30 hours following operation 30 mg. *nor*adrenaline was required. After this period the pressure became stable at approximately 98/50, and remained at this level during the patient's stay in hospital.

Eight weeks after operation her blood pressure was 145/100. There were no signs of adrenal cortical insufficiency. Clinical and radiological examination at this time showed no change in the size of the heart.

Histologically the tumour was found to be a typical phaeochromocytoma. Assay showed that 1 g. of tumour tissue contained 8.3 mg. L-*nor*adrenaline and 1.32 mg. L-adrenaline.

Discussion

Some features of the case require comment. The test substances, histamine (Roth and Kvale, 1945) and acetyl-β-methylcholine (Guarneri and Evans, 1948), failed to produce a typical paroxysm. The rise in blood pressure after injection of these substances and that following abdominal palpation were not associated with tachycardia, nor with any of the symptoms or other signs which characterize a spontaneously occurring attack. Symptomless paroxysmal rises in blood pressure have also been noted in patients with phaeochromocytoma (MacKeith, 1944).

The pressor effect of *nor*adrenaline following intravenous injection is not associated with tachycardia or usually with distressing subjective symptoms (Swan, 1949). It might therefore be postulated that asymptomatic paroxysmal hypertension in the presence of a phaeochromocytoma is due to the release of *nor*adrenaline, and that attacks with tachycardia and marked subjective symptoms follow the release of adrenaline. If this is so, the absence of hyperglycaemia during a spontaneous attack in this case is difficult to explain, since adrenaline is eight times more potent than *nor*adrenaline in producing hyperglycaemia (West, 1947).

The dangers of operative removal are, first, the development of a fatal hypertensive paroxysm when the tumour is handled (Holst, 1938), and, secondly, the development of post-operative hypotension, which occurred in approximately half the reported cases. It has been suggested that *nor*adrenaline rather than adrenaline should be used in its treatment (Walton, 1950), and its efficacy in our case is worthy of note, particularly since administration of the more commonly used pressor substances to an elderly patient with cardiac enlargement might carry considerable risk.

Summary

The successful removal of a phaeochromocytoma from an elderly woman is reported.

Certain unusual features of the case are briefly discussed, and the value of *nor*adrenaline in the control of post-operative hypotension is noted.

The patient was under the care of Professor F. M. B. Allen, to whom we are indebted for co-operation and advice. We are indebted to Professor J. H. Biggart for the pathological study, and to Dr. T. B. B. Crawford, Edinburgh University, for the assay of the pressor activity of the tumour. The *nor*adrenaline used was part of a gift to Professor Greenfield from Messrs. Bayer Products, Ltd.

REFERENCES

Guarneri, V., and Evans, J. A. (1948). *Amer. J. Med.*, **4**, 806.
Hatch, F. N., Richards, V., and Spiegl, R. J. (1949). Ibid., **6**, 633.
Holst, E. J. (1938). *Acta med. scand.*, **94**, 510.
MacKeith, R. (1944). *Brit. Heart J.*, **6**, 1.
Roth, G. M., and Kvale, W. F. (1945). *Amer. J. med. Sci.*, **210**, 653.
Shipley, A. M. (1929). *Ann. Surg.*, **90**, 742.
Swan, H. J. C. (1949). *Lancet*, **2**, 508.
Walton, J. N. (1950). Ibid., **1**, 438.
West, G. B. (1947). *J. Physiol.*, **106**, 418.

RETROLENTAL FIBROPLASIA

BY

JOSEPH MINTON, F.R.C.S.

Ophthalmic Surgeon, Hampstead General Hospital, Queen Elizabeth Hospital for Children, West End Hospital for Nervous Diseases, and the London Jewish Hospital

AND

PAULINE COLE, M.B., B.S., D.C.H.

House-surgeon, Queen Elizabeth Hospital for Children

Recent investigations in America have shown that blindness must be added to the recognized hazards of premature birth. Terry was the first to describe, in 1942, a disease of the eyes which occurs in premature-born infants. He called this disease " retrolental fibroplasia." He noticed that in a number of prematurely born infants an opaque vascularized membrane forms behind the lens after birth, both eyes being affected. He studied this condition for several years, and in 1945 came to the conclusion that 10% of the infants born prematurely in the Boston Lying-in Hospital and weighing 3 lb. (1.4 kg.) or less at birth can be expected to be blind from retrolental fibroplasia. Since that date a number of ophthalmologists and paediatricians in the U.S.A. have reported on this disease.

W. C. Owens and E. U. Owens followed from birth 214 infants born prematurely in Johns Hopkins Hospital. Their investigations were limited to the children whose birth weight was 4½ lb. (2 kg.) or less. The infants were examined from birth at monthly intervals until the age of 6 months, and at bimonthly intervals from 6 months to 1 year. None of these infants had retrolental fibroplasia at birth, but nine developed it in post-natal life. The eyes of these infants were normal at birth.

Between the second and the fifth month of post-natal life the infants who developed retrolental fibroplasia began to show angiomatous dilatations of the retinal vessels with oedema of the retina. After a short time the retina became detached. At first the detachment was limited to the peripheral parts of the retina, but in course of time the folds of the detached retina coalesced and a total retinal detachment took place. Bands of fibrous tissue developed from the detached retina and extended into the vitreous.

In the final stage of a fully developed case of retrolental fibroplasia an opaque vascular membrane could be seen behind the lens. In the fully developed stage of the disease the eyes may be smaller than usual (microphthalmia), the anterior chamber is usually shallow, the iris is usually atrophic and may be bluish in colour (foetal blue colour), and the margins of the pupil are adherent to the lens (posterior synechiae). The infants may sometimes develop a secondary nystagmus. The eyes become blind. In some cases perception of light may be present.

These reports about the development of retrolental fibroplasia in premature infants are therefore of importance to paediatricians and obstetricians.

Is the disease prenatal in origin or is it post-natal ? A number of observers are of the opinion that the disease of the eyes of premature infants is only one manifestation of a generalized maldevelopment (dysplasia) of the vascular and nervous tissues of the foetus in antenatal life. They point out that these infants usually show other congenital defects—haemangiomata of the skin and retarded mental and physical development. These views are of great interest to obstetricians, who are now searching for all possible causes of the development of the disease in antenatal life. Virus infections, toxoplasmosis, and vitamin deficiencies during pregnancy have been put forward as likely agents.

The clinical observations of Owens and Owens, that this eye disease shows itself in post-natal life, have stimulated research by paediatricians. Vitamin-E deficiency with excess of vitamin A in the food of the premature infant is suggested by some as the cause of the onset of the disease.

The following two cases are reported because they show the typical manifestations of retrolental fibroplasia. The post-mortem pathological investigations of the first case may throw further light on the causation of the disease.

Case 1 : Retrolental Fibroplasia in a Full-term Infant Associated with Multiple Congenital Deformities

Family History.—Both parents healthy. No family diseases. No consanguinity. Mother aged 32: group A, Rh-positive. Two previous pregnancies, both going to term: first baby died 36 hours after birth from pneumonia. Birth weight 8 lb. (3.6 kg.). Second baby, full-term infant of 8 lb. 11 oz. (3.9 kg.); now fit and normal, aged 6 years.

Pregnancy.—Mother was quite well until seventh month, then developed slight backache and oedema of the ankles, with moderate hydramnios.

Labour.—Medical induction on September 16, 1949, five days after expected delivery. Normal vertex delivery, placenta complete, membranes ragged. There were about 6 pints (3.4 litres) of amniotic fluid.

Birth Weight.—This was 6 lb. 12 oz. (3.1 kg.). The baby was vigorous, but had multiple congenital deformities: mild micrognathia, cleft soft palate, mild talipes equinovarus, and heart slightly enlarged to the right. No haemangiomata were found. No defect of the eyes noticed at birth, and there was no eye infection. The baby's progress was slow, as the cleft palate made feeding difficult.

At 5 Weeks.—Bilateral opacities in the eyes were first noticed by Dr. Helen Mackay. Examination of the eyes showed these to be retrolental (J. Minton). Head circumference was then 13¾ in. (35 cm.).

At 3½ Months.—Admitted to Queen Elizabeth Hospital for investigation. On examination: Restless puny baby, weighing 7 lb. 9 oz. (3.4 kg.), with micrognathia, cleft palate, and talipes. No haemangiomata of the skin. When put on her side she frequently arched her back and lay with her head retracted, and the legs tended to cross when she was picked up, but there was no true spasticity. She appeared to be mentally defective. The eyes showed bilateral retrolental opacities, intermittent nystagmus, and there was alternating concomitant convergent squint. No attempt was made to follow light.

Report of Examination of Eyes under an Anaesthetic, January 13, 1950 (J. Minton)

" *Left Eye.*—Optic disk pale. Retinal vessels small but otherwise normal. Small degenerate retinal areas were present around the disk. A whitish vascular mass was seen at the equator of the eye: this was situated between 3 and 6 o'clock. The mass was mobile, and when the eye was pushed inwards the vascular mass moved and covered the pupil. This vascular structure was thought to contain a part of the detached retina. *Right Eye.*—The optic disk could not be seen. A red reflex was present in the outer part of the eye. A vascular whitish mass was present behind the pupil from 1 to 7 o'clock. This was probably a

detached retina. There was no evidence of any lens opacities in either eye and there were no posterior synechiae."

The baby was then put on vitamin E, 3 mg. thrice daily, working up to 6 mg. thrice daily, over two weeks, but a few days after admission she developed gastro-enteritis, and on February 5 she died, aged 5 months.

Post-mortem Examination

Apart from the deformities previously mentioned, there were a patent ductus arteriosus, an unusually small spleen, and changes in the small intestine due to gastro-enteritis. The brain was small, the left cerebrum being slightly smaller than the right, and the optic tract was smaller than normal. The convolutions were entirely absent over both halves of the cerebrum.

The baby's eyes were removed and sent to the Institute of Ophthalmology, where they were examined by Dr. Norman Ashton, who reported as follows:

"Both eyes appear moderately microphthalmic. *Right Eye.*—There is a shadow crossing behind the lens from 11 o'clock to 5 o'clock. Total retinal detachment. *Vertical Section.*—The cornea, iris, and corneo-iridic angle show no abnormality. The lens is healthy. Situated immediately behind the lens, and especially to one side, there is a mass of fibroplastic tissue which is partially calcified. To this tissue the totally detached and degenerate retina is adherent; on one side the detachment has extended beyond the ora serrata and has involved about half of the pars plana, while on the opposite side only a small portion of the pars plana is detached (Figs. 1 and 2). In some areas there is marked vascularization of the retrolental connective tissue. The choroid and ciliary body are normal and show no inflammatory reaction. The sclera shows no abnormality. There is early atrophy and gliosis in the optic nerve. *Left Eye, Horizontal Section.*—The condition of the left eye is exactly similar except that the detachment does not extend beyond the ora serrata.

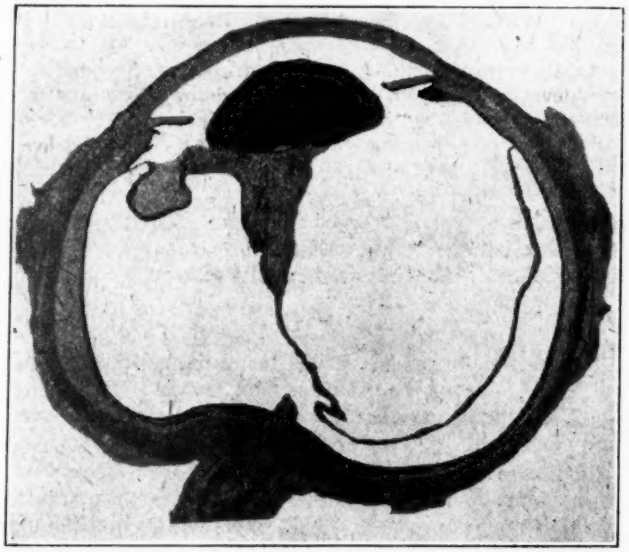


FIG. 1.—Case 1. The right eye (whole section) shows fibroplastic tissue situated immediately behind the lens. To this tissue a totally detached and degenerate retina is adherent. At one side the detachment has extended beyond the ora serrata, and on the other the detachment ends at the ora.

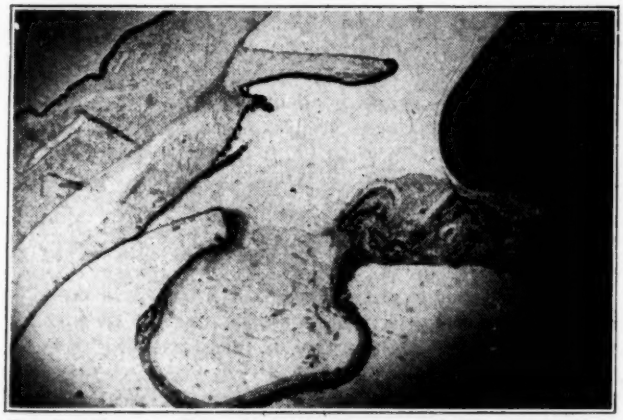


FIG. 2.—Case 1. The retinal detachment, including a part of the pars plana.

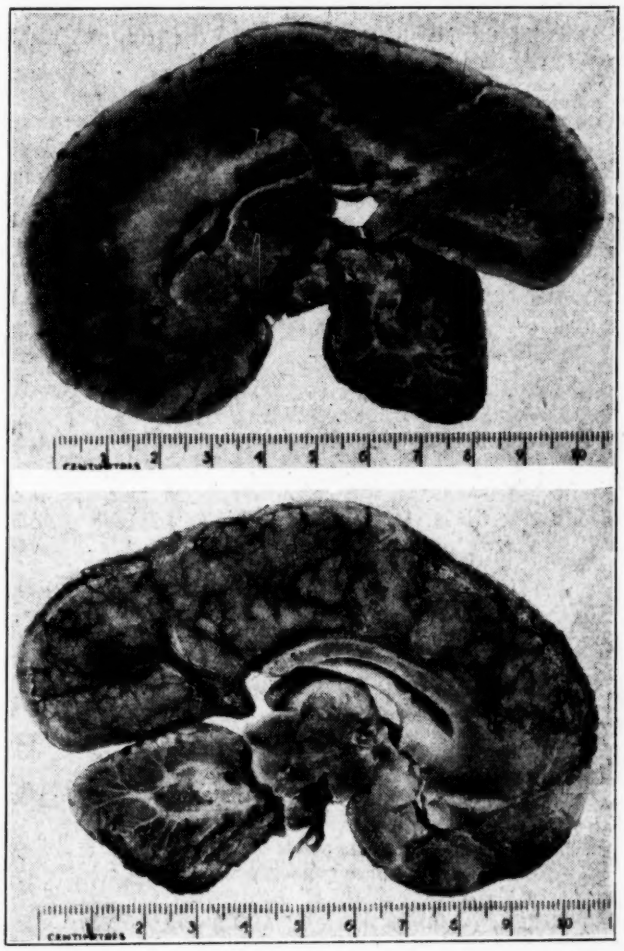


FIG. 3.—Case 1. Hypoplastic brain, showing almost complete agyria.

"This case would appear to be a perfect example of the association between anomalies in the eyes and brain, as described by Krause (congenital encephalo-ophthalmic dysplasia). The cerebrum is markedly hypoplastic, and apart from the parieto-occipital sulcus it appears to be agyric." (Fig. 3.)

Comment on Case 1

In this case retrolental fibroplasia was found in a full-term infant, in association with other congenital abnormalities: (1) cleft soft palate, (2) patent ductus arteriosus, and (3) mental defect due to hypoplasia of the brain. There is no doubt that some unknown agents caused the maldevelopment of the brain, the soft palate, and the heart in the antenatal life of the infant. At the same time the development of the eyes was also affected. The mother carried the infant to full term, and at birth the eyes looked normal. The retrolental opacities appeared in post-natal life. These opacities were due to the formation of a vascular fibroplastic tissue, which included a degenerated detached retina. The detach-

ment of the retina in the right eye extended beyond the ora serrata and involved about half of the pars plana of the ciliary body.

Embryologists have shown that in the pars plana the clear and pigmented cells should unite between the third and fourth months of foetal life and that the union should be firm; the presence of the pars plana in the vascular fibroplastic tissue shows that the union did not take place in the right eye, and that the fibroplastic reaction started before the union could have been established. In the left eye the retinal detachment did not extend beyond the ora serrata. Evidently the vascular fibroplastic process started after the union of the pars plana was completed.

In November, 1949, the Section of Ophthalmology of the Royal Society of Medicine had a discussion on retrolental fibroplasia. Mr. Eugene Wolff demonstrated sections of an eye excised from a prematurely born infant. The infant was nine weeks premature, and weighed at birth 2½ lb. (1.1 kg.). The left eye of the infant was excised at the age of six months. Eugene Wolff's sections showed an appearance similar to our case.

The post-mortem findings of our case and the pathological report of the eyes suggest that the cause of retrolental fibroplasia should most probably be looked for in the intrauterine life of the foetus, and that premature birth may be the result of the same noxious influences.

Case 2: Retrolental Fibroplasia in a Premature Infant Now Aged 2 Years

Family History.—Both parents healthy. No family disease or blindness. No consanguinity. First child. No miscarriages.

Pregnancy.—Mother perfectly well throughout, but went into labour 14 weeks before expected date.

Labour.—Normal labour. Thirteen hours. Vertex delivery. Placenta unhealthy.

Birth Weight.—2 lb. 8 oz. (1.1 kg.). Baby cried well. Colour good. Kept in oxygen tent for 16 days. Gained steadily from fifth day onwards.

Feeding.—Expressed breast milk for six weeks, then half-cream National Dried Milk. No extra protein. At 6 weeks, orange juice 3 min. (0.18 ml.) and cod-liver oil 3 min. daily. No other vitamins given.

At 1 Month.—Discharge from both eyes for two weeks. Treated with penicillin eyedrops.

At 2 Months.—Discharged from maternity home weighing 5 lb. 1 oz. (2.4 kg.). No abnormality of eyes noticed at this time.

At 4 Months.—Mother first noticed "white mist" over the eyes, and that the baby did not follow objects with the eyes. She thought the baby had some perception of light, as she disliked bright sunlight.

At 9 Months.—Referred to one of us (J. M.) for investigations into cause of blindness. Posterior synechiae were then present with bilateral opacities behind the lens.

Investigations.—W.R., Kahn, and gonococcus complement-fixation tests negative in serum and C.S.F. Blood count, urine, and radiograph of skull were normal.

At 10 months the baby developed measles, without complications, and at 2 years of age she was admitted to Queen Elizabeth Hospital for investigation.

Milestones of the case are: first teeth at 11 months; patient did not sit up till 1 year old; at 2 years she walks well and talks a little.

Examination showed her to be a thin but healthy child who was blind. There were no haemangiomata of the skin, no clinical abnormality in the C.N.S., and no nystagmus. Intermittent alternating convergent squint was present.

Report of Examination of Eyes under an Anaesthetic (J. Minton)

"Both eyes are smaller than normal. Intraocular tension is normal. *Right Eye.*—Cornea clear and of normal dimensions. No keratitic precipitates or opacities present. Very shallow anterior chamber. Iris atrophic at the pupillary margin. The rest of the iris has a normal pattern. Pupil irregular, with multiple small and large posterior synechiae adherent to the lens, which is clear: no opacities (Fig. 4). A grey mass is lying in the vitreous a good way behind the lens. This is most probably a detached retina. With an ophthalmoscope a yellowish light reflex can be obtained from the nasal side. Pressure on the temporal side of the globe causes a movement of the temporal part of the detached retina. *Left Eye.* — Cornea clear, normal dimensions. Shallow anterior chamber. Iris atrophic. The lens has no opacities. The pupil is irregular, and more dilated than the right. A number of posterior synechiae are adherent to the lens. A grey mass is present in the vitreous, a good way behind the lens. This mass is most probably a detached retina. With an ophthalmoscope a faint yellowish light reflex can be obtained from the centre of the detached retina."

FIG. 4.—Case 2. A drawing of the right eye, showing atrophic iris. The pupil is irregular, and posterior synechiae are adherent to the clear lens. A grey mass is lying in the vitreous.

Case 2 is a typical case of retrolental fibroplasia in a prematurely born infant without any other congenital abnormalities. She is not mentally retarded.

Incidence of the Disease

Retrolental fibroplasia seems to be more prevalent in the U.S.A. than here. Owens and Owens and Gilger found an incidence of 7% in prematurely born infants weighing 4½ lb. (2 kg.) or less at birth.

American and British investigations have shown that its incidence is inversely proportional to the birth weight of the premature infants. That explains the high figure of 23% in Boston (Terry, and Clifford and Weller) amongst premature infants weighing under 3 lb. (1.4 kg.) at birth.

In Great Britain Dr. Mary Cross has investigated 4,000 cases of premature births in the City of Birmingham. These cases were followed up to the age of 1 year. Only four cases of retrolental fibroplasia have been found among them. Dr. Mary Cross gave the following figures of its incidence: "0.1% of all prematurely born babies, 0.8% of babies under 4 lb. at birth, 4.2% of babies under 3 lb. at birth."

The latest reports from America are as follows: Hepner, Krause, and Davis followed up 66 cases of retrolental fibroplasia. All but 5 of 110 infants were prematurely born.

In Great Britain Mr. P. McG. Moffatt examined 119 blind children who are being cared for in the six Sunshine Homes. At the time of investigation (1949) he found 12 cases in which the diagnosis of retrolental fibroplasia could be made with reasonable certainty; two others were doubtful. Evidently the disease is not new in Great Britain, but it was not diagnosed.

Diagnosis

Until 1942, when Terry first described retrolental fibroplasia, infants who were found to have opacities in the eyes in the first few months of their lives were often thought to be suffering from congenital cataracts. It is very difficult to examine young infants, and a rapid examination of the eyes of a struggling child has led many paediatricians and ophthalmologists to diagnose opacities inside the eyes as congenital cataracts.

In view of the recent work on retrolental fibroplasia it seems essential that the eyes of such infants should be examined under a general anaesthetic. Only in this way can one distinguish an opacity in the lens from a vascular membrane in the vitreous.

The other conditions which must be considered are:

Glioma of Retina (Retinoblastoma).—This condition has no relation to the premature birth of the infant. The eye is normal in size, and there are no posterior synechiae. The condition is usually unilateral. The mass which lies in the vitreous behind the lens is usually yellowish. The tension of the eye may be raised.

Remains of Posterior Vascular Sheath (Hyperplasia of Primary Vitreous).—In this condition a persistent hyaloid artery with a cone of vascular connective tissue is found in the vitreous. The amount of hyperplastic tissue in the vitreous varies in different cases. This condition is present at birth and is usually unilateral.

Pseudoglioma.—This eye disease starts in much older children—at the age of 2 years. It usually follows a severe general infective disease (meningitis). The mass in the vitreous is the result of metastatic uveitis.

The general physician will find in the ophthalmic literature full descriptions of the clinical and pathological features of the last three eye diseases. Retrolental fibroplasia is not yet described in textbooks of ophthalmology.

Prognosis and Treatment

Local treatment of the eye by needling of the vascular membrane has been tried by a number of ophthalmic surgeons, but the results are unsatisfactory. Various forms of general treatment have also been tried. Owens and Owens have given to a group of prematurely born infants, in whom the disease was just becoming apparent, a water-miscible vitamin-E preparation. At the same time the intake of vitamin A and iron was reduced. They reported a retrogression of the disease of the eyes. These reports have not yet been confirmed by other observers.

Children suffering from this disease usually lose their vision. Some cases have perception of light. A large number of children are mentally retarded. The reports from U.S.A. show that at least 50% of these children are mentally backward.

Summary and Conclusions

Terry first described retrolental fibroplasia in 1942 amongst prematurely born infants in Boston, U.S.A. Since that date a large number of these cases have been reported in the U.S.A. In Great Britain, Dr. Mary Cross followed up 4,000 premature infants in the city of Birmingham. Four cases of retrolental fibroplasia were found among them. Mr. P. McG. Moffatt examined 119 blind children in the Sunshine Homes in Great Britain and found 12 cases of retrolental fibroplasia—7 girls and 5 boys. Prematurity varied from 12 to 8 weeks.

In this paper two cases of retrolental fibroplasia are reported from the Queen Elizabeth Hospital for Children, London. The first infant was born at full term and weighed 6 lb. 12 oz. (3.1 kg.) at birth. This infant died from gastro-enteritis. The pathological appearances of the brain and eyes are described. The second case was typical. It is most probable that this eye disease is caused by some noxious agents during the intrauterine life of the foetus.

We wish to thank Dr. Helen Mackay and Dr. I. M. Anderson for referring the two cases to the Ophthalmic Department of the Hospital, Dr. B. Levin for the post-mortem report of Case 1, Dr. Peter Hansell for the photographs of the sections of the eyes, and Dr. Norman Ashton for the pathological reports and for his kind help and co-operation.

BIBLIOGRAPHY

Bawkin, R. M. (1946). *Arch. Ophthal.*, **36**, 362.
Clifford, S. H., and Weller, K. F. (1948). *Paediatrics*, **1**, 505.
François, P. (1948). *Bull. Soc. Ophtal., Paris*, No. 5, p. 252.
Galloway, N. P. R. (1948). *Proc. R. Soc. Med.*, **41**, 724.
Gilger, A. P. (1949). *Amer. J. Ophthal.*, **32**, 917.
Hepner, W. R., Krause, A. C., and Davis, M. E. (1949). *Paediatrics*, **3**, 824.
Horovitz, I., and Schuff, E. (1947). *Acta med. orient., Tel-Aviv*, **6**, 123.
Ingalls, T. H. (1948). *J. Amer. med. Ass.*, **138**, 261.
Jackson, B., and Kinsey, V. E. (1946). *Amer. J. Ophthal.*, **29**, 1234.
Kinsey, V. E., and Zacharias, L. (1949). *J. Amer. med. Ass.*, **139**, 572.
Klien, B. A. (1949). *Arch. Ophthal.*, **41**, 553.
Krause, A. C. (1946). Ibid., **36**, 387.
Moffatt, P. McG. (1950). *Proc. R. Soc. Med.*, **43**, 223.
Owens, W. C., and Owens, E. U. (1949a). *Amer. J. Ophthal.*, **32**, 1.
—— —— (1949b). Ibid., **32**, 1001.
Reese, A. B., and Payne, F. (1946a). Ibid., **29**, 1.
—— —— (1946b). *Sight-sav. Rev.*, **16**, 123.
—— (1948). *Amer. J. Ophthal.*, **31**, 95.
—— (1949). *Arch. Ophthal., Chicago*, **41**, 527.
—— and Blodi, F. C. (1949). *Klin. Mbl. Augenheilk.*, **114**, 18.
Runge, P. M. (1947). *Sight-sav. Rev.*, **17**, 44.
Speert, H., Blodi, F. C., and Reese, A. B. (1950). *Amer. J. Obstet. Gynec.*, **59**, 246.
Terry, T. L. (1942a). *Amer. J. Ophthal.*, **25**, 1409.
—— (1942b). Ibid., **25**, 203.
—— (1943). *Arch. Ophthal., Chicago*, **29**, 54.
—— (1945a). *J. Amer. med. Ass.*, **128**, 582.
—— (1945b). *Arch. Ophthal., Chicago*, **33**, 203.
—— (1946). *J. Pediat.*, **29**, 770.
—— (1948). *Advance in Paediatrics*, **3**, 55. New York.
Unsworth, A. C. (1948). *Arch. Ophthal., Chicago*, **40**, 341.
Warkany, J., and Schraffenberger, E. (1946). Ibid., **35**, 150.
Wolff, E. (1950). *Proc. R. Soc. Med.*, **43**, 227.

From time to time the feasibility of health centres is discussed as a method of improving the facilities and therefore the standard of general practice, and it is often assumed that they must benefit the National Health Service. They face, however, two kinds of difficulties, it is pointed out in a recent *Manchester Guardian* article. One is purely financial: it is estimated that it would cost between three and five times as much to give a doctor proper equipment and accommodation, with the service of cleaners, clerks, and nurses, in a health centre, as it does at present for him to work in his own home assisted by his wife. The other is a matter of psychology: no one in fact knows to what extent the public will be prepared to use health centres. Few established practitioners would be willing to move into them, fearing that they would lose patients if they did; but on the other hand some doctors take quite the opposite view—that a health centre represents "unfair competition" with the home-based doctor. Clearly the only answer is to try opening just one or two centres as an experiment, to see what in fact happens, and it is this which is a particularly important aspect of the proposed opening of Darbishire House, Chorlton-on-Medlock, as an independent health centre in Manchester under the general control of the University. The five or six general practitioners who would take part all have N.H.S. lists of over 3,000, and would be guaranteed against any loss of income in the first seven years by a grant from the Rockefeller Foundation, which has offered £20,000 for this and other purposes, and £10,000 towards equipment. The building is to be converted and loaned by the Nuffield Provincial Hospitals Trust, which is prepared to put over £30,000 into the scheme.

A NEW OPERATION FOR CHRONIC PEPTIC ULCER

BY

STANLEY O. AYLETT, M.B., B.Sc., F.R.C.S.
Surgeon, Metropolitan Hospital; Assistant Surgeon, Westminster Hospital Teaching Group (Gordon Hospital)

In spite of a general acceptance of the operation of subtotal gastrectomy as the method of choice in the surgical treatment of chronic peptic ulcer, there can be few surgeons who remain wholly satisfied with this procedure. The operation is a mutilating one, and if the danger of anastomotic ulceration is to be avoided removal of most of the stomach is necessary.

With this extensive removal the physiological functions of the organ largely disappear. It can no longer serve as a receptacle for a normal amount of food; it can no longer macerate the ingested contents by its muscular activity so that they are discharged as fluid chyme into the small intestine; and the digestive action of its secretions is lost. It is not surprising, therefore, that in a considerable proportion of cases post-operative sequelae of an intractable type result. At their worst, these may take the form of the "dumping syndrome"; at their best, of lesser digestive disturbances such as periodic vomiting, a sense of fullness after anything but a small meal, and even periodic pain necessitating the continuation of a modified ulcer regime.

The dissatisfaction with the end-results of subtotal gastrectomy, especially in cases performed for duodenal ulcer, was best expressed by the enthusiasm with which the alternative operation of vagotomy was welcomed. But the post-operative complications of this procedure and the uncertainty of its ability to cure the ulcer have disappointed the high hopes with which it was introduced.

Theoretical Basis

The purpose of this preliminary communication is to record a new operation for the treatment of chronic peptic ulceration, which, though originally designed for cases of duodenal ulcer, may with minor modifications be used for the treatment of nearly every case of gastric ulcer as well. The main merit of this operation lies in the fact that, as well as curing the ulcer and permanently reducing the acidity, the patient is left with an intact stomach. Gastric function is therefore retained, and the post-operative sequelae associated with gastrectomy are absent.

Peptic ulceration of the distal part of the duodenum or the jejunum is so rare as to be a surgical curiosity. That the mucosa of these structures has no inherent ability to withstand the ulcerative action of gastric juice is shown by the common occurrence of anastomotic ulcer when they are anastomosed to the stomach as in a gastro-enterostomy. It seems clear, therefore, that the alkaline secretions emerging from the biliary apparatus and from the pancreas must be the normal protecting influence. Provided that these secretions are allowed to mix adequately with the stomach contents, their alkalinity is sufficient to neutralize the acidity of the gastric juice and so prevent ulceration. After a gastro-enterostomy there is little mixing of the gastric and the duodenal secretions in the stomach, as the latter are short-circuited over the spur of the anastomosis into the distal intestine without entering the stomach. Neutralization therefore does not occur and anastomotic ulceration is the result of this failure. It is reasonable, then, to assume that, if this highly alkaline secretion were introduced direct into the stomach, there would be a constant neutralizing effect. The aim of gastrectomy or vagotomy would therefore be achieved, but without removing a large part of the stomach or interrupting its nerve supply. It is on these principles that the present operation has been devised.

Operative Technique

The abdomen is opened by the customary paramedian incision, and the greater and lesser omenta divided from the pyloric end of the stomach and the adjacent duodenum for some 4 cm. When the ulcer is in the duodenum and well away from the pylorus, the duodenum is cut across just distal to the pylorus and its end closed and invaginated, as in a gastrectomy. The proximal end of the duodenum remains open and gastric contents are prevented from spilling into the wound by a non-crushing clamp placed across the pyloric end of the stomach.

The first loop of the jejunum is then drawn up into the wound. The mesentery of the jejunum is divided at a point some 7 to 8 cm. from the duodeno-jejunal flexure. The division extends outwards to the bowel and downwards towards the root of the mesentery, but not so far as to jeopardize the blood supply of the proximal loop. In actual practice the division of the mesentery extends for about 3 cm. The jejunum is then divided between non-crushing clamps (Fig. 1). A few bleeding points on the edge of the bowel will then require ligation.

The distal cut end of the jejunum is then brought over towards the open end of the duodenum, and to this it is anastomosed (Fig. 2). No difficulty is experienced in approximating these two ends, and at the completion of the anastomosis the line of union lies loosely over the transverse colon in the region of the hepatic flexure. On completion of the anastomosis the lumen should admit the tips of two fingers.

The upper part of the stomach is now drawn downwards from its subcostal position, so that an area on the anterior surface at the junction of the upper third and lower two-thirds is exposed in the wound. The proximal limb of the jejunum is brought in front of the transverse colon and the open end approximated to this upper portion of the stomach by a continuous layer of seromuscular sutures. These are inserted so that each stitch on the jejunal side takes up a broader bite of tissue than on the stomach side. By so doing a breadth of about 3 cm. of seromuscular jejunal coat is approximated to about 2 cm. of similar coat of stomach. The object of anastomosing the normal width of the jejunum to a lesser width of stomach wall—a device that is carried out with all the layers of the anastomosis—is to produce at this site a final lumen between intestine and stomach capable of admitting the tip of the little finger only. The stomach is then opened through an incision little more than 1 cm. long, and a continuous suture is passed through all layers of the adjacent walls of the stomach and jejunum. A Connell inversion stitch is used for the approximation of the anterior layers in order to prevent any mucosal eversion. As already noted, throughout this continuous suture each stitch on the jejunal side includes a broader bite of tissue than its counterpart on the stomach side, so that the final

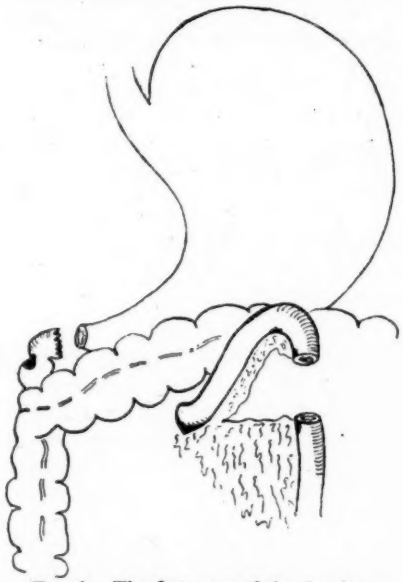


FIG. 1.—The first part of the duodenum has been divided and the end invaginated. The jejunum and its mesentery have been divided.

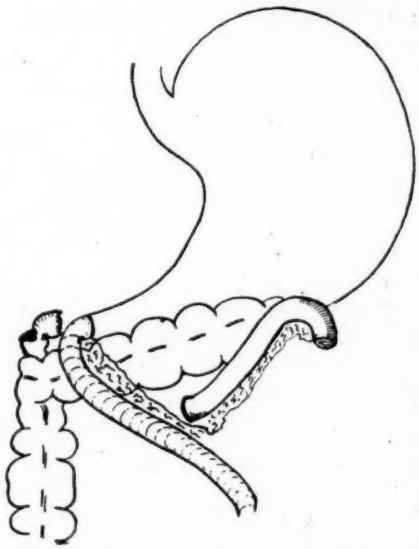


FIG. 2.—The distal cut end of the jejunum has been anastomosed to the cut end of the duodenum.

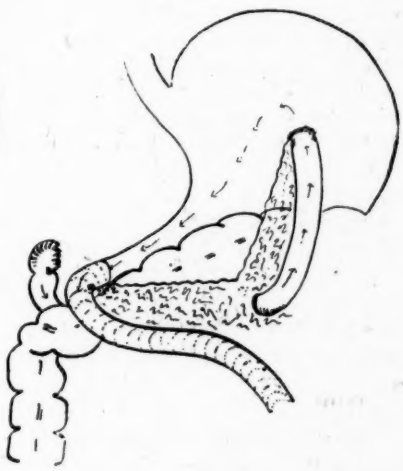


FIG. 3.—The operation has been completed by implantation of the proximal end of the jejunum into the anterior wall of the stomach at the junction of its upper and lower two-thirds.

stoma is of the size indicated above. An anterior seromuscular stitch completes the anastomosis (Fig. 3).

When the bowel is returned to the abdomen the newly sited loops of the jejunum lie comfortably and are under no tension, one in front of each end of the transverse colon, the intervening V of mesentery covering the medial portion.

Various Technical Modifications

In those cases in which the duodenal ulcer is very close to the pylorus, the pyloro-duodenal region is divided, not through the duodenal side of the pylorus, but on the stomach side of the pyloric vein. The difficulties and dangers associated with the invagination of a duodenal stump through a scarred, oedematous, and thickened area are thus avoided, the closure being made through tissue which will hold sutures without their cutting out. In a gastrectomy it is, of course, essential to remove the mucosa of the pyloric antrum in order to avoid the hormonal stimulation of acid secretion. In this procedure, however, depending as it does not on the prevention of acid secretion but on its neutralization, such is not the case. It has been suggested to me by Professor C. A. Pannett that it may be best in such cases to excise the part of the duodenum which contains the ulcer and the adjacent pylorus, and to close the duodenum in its second part. This may well prove to be the better way in those cases in which the mobilization of the duodenum is not prevented or made difficult by surrounding scar and adhesion formation, but when these are present the procedure discussed above will probably remain the method of choice.

In the operation as originally planned it was thought that the pylorus would have to be retained in order to leave the patient with a stomach having a normal emptying time. Experience has shown, however, that the anastomosis can be carried out on either side of the pylorus without interfering at all with the time of emptying. Post-operative barium meals show a normal emptying time following anastomosis at either site, and it is impossible to distinguish one radiograph from the other.

Where the operation is performed for cases of gastric ulcer, the usual procedure is carried out, but in addition the ulcer is excised. This entails separation of either the greater or the lesser omentum from the stomach, depending on the site of the ulcer. After wedge excision of the ulcer and restoration of continuity, the omentum is resutured to the stomach wall. In these cases, if the ulcer has become adherent to the pancreas and to the transverse mesocolon, the mesocolon may be opened ; in one case in which this occurred the adjacent limb of the jejunum was brought through this opening posterior to the transverse colon before being sutured to the anterior stomach wall.

Post-operative Progress

There is no doubt that this operation produces less shock than a gastrectomy, and all thirteen patients on whom the operation has been performed have been in excellent condition on their return to the ward. Little blood is lost during the operation, and only once has blood been given in the theatre. In this case the patient had had a third severe haematemesis, which had only recently ceased.

Of these thirteen patients, three had gastric ulcer, nine had duodenal ulcer, and one a double ulcer. All had been under medical care, mostly for several years before the operation ; three had had previous perforations and five severe haemorrhages. In only one of the duodenal ulcer patients was post-operative gastric suction necessary, but two of the gastric cases needed such treatment for a few days. The case of duodenal ulcer requiring suction was one of the earlier cases operated upon, and the anastomosis between the pylorus and the jejunum had probably been made too small: oedema at the suture line no doubt caused the temporary obstruction. Apart from these minor post-operative complications, convalescence has been entirely uneventful. Grading of the diet in the first few days after operation has followed the usual post-gastrectomy routine up to the level of a full hospital diet.

It would be presumptuous to assess the final results of this operation on the basis of the small series of cases

here presented and of the brief follow-up period, which is measured only in months: this must be left for a later occasion. It is, however, permissible to report the immediate post-convalescence progress of these patients. Twelve out of the thirteen are on a full diet; of these, ten will admit to no symptoms, even under pressure of direct questioning; two say that there is an occasional sense of fullness after having eaten a full meal; and the last patient, who has barely finished her convalescence, complains of periodic nausea, but says that this is improving. Freedom from pain is complete and all the patients are enjoying their food. Those who had lost weight before the operation, and who have been followed up for at least three months, have recorded steady gains in weight. No suspicion of a dumping syndrome has been noted, and the constant presence of bile in the stomach has produced no ill effect.

The likelihood of anastomotic ulcer seems remote in this type of operation, where the whole of the alkaline pancreatic and biliary secretions are transferred to the stomach. Post-operative test meals have been carried out, and all show a reduction to normal levels of acidity or to complete achlorhydria. As a routine, samples of gastric juice are now aspirated at hourly intervals over a period of 24 hours while the patient is on a full hospital diet; this would seem to be a better way of getting a true picture of the changing acidity of the stomach.

While the operation described is still in the experimental stage, its initial success warrants an extensive trial. No surgeon would wish to remove the stomach in the treatment of peptic ulcer if such a drastic step could be averted. The avoidance of resection may lie along the lines suggested in this preliminary report.

I would like to express my grateful thanks to Professor C. A. Pannett, with whom this operation has been fully discussed, for his encouragement and interest. My thanks are also due to my colleagues, Dr. B. Armstrong, Dr. C. B. Lewis, and Dr. S. Guerrier, who have given anaesthesia in the first exacting cases of a new operation.

Recent contributions to the Scandinavian medical press give expression to a quite lively dissatisfaction with the multiplicity, complexity, and cost of laboratory and other tests now in vogue in many hospitals. Dr. Lennart Norrlin, of Stockholm, in *Svenska Läkartidningen*, December 8, 1950, page 2843, has nothing good to say of radiological examinations in cases of acute gastric or duodenal perforation. He refers to cases in which a radiologist's report has induced him to undertake an exploratory laparotomy, though its hopelessness had seemed obvious to him from the outset. Proper exercise of the five senses is, in his opinion, to be preferred to laboratory reports; and the hospital chief who delays his first attendance on a new case by several days in order to equip himself with a handful of laboratory reports is no model for his juniors. Referring to the prodigality with which radiologists dispense their skiagrams, Dr. Norrlin mentions a case in which a relatively simple fracture of the leg below the knee was illustrated by 17 skiagrams, of which 13 were superfluous. In a more general approach to the subject, Dr. Ole Jacob Broch, of Oslo, in *Tidsskrift for den Norske Laegeforening*, November 15, 1950, page 728, queries the usefulness of many fashionable radiological and laboratory tests. He points out that in elderly folk there are always radiologically demonstrable changes in the spine, but that to hold them responsible for all the patient's symptoms may be wide of the mark. In 1949, Roentgen diagnosis cost the health insurance funds in Oslo fully 14% of all the doctors' charges. As for electrocardiograms, Dr. Broch suggests that watching the effect on a patient of walking upstairs may be much more instructive.

A RARE BLOOD GROUP ANTIGEN OCCURRING IN NEGROES

BY

ELIZABETH W. IKIN, B.Sc.

AND

A. E. MOURANT, D.Phil., D.M.

(From the Blood Group Reference Laboratory, Medical Research Council)

Landsteiner, Strutton, and Chase (1934) found, in the serum of 2 out of 12 rabbits that had received injections of the red cells of a negro, an antibody which agglutinated the cells of the donor and was subsequently found to agglutinate the cells of 14 out of 191 negroes but of only 2 out of 387 white persons. All those whose cells gave positive reactions were of Group N or MN. Wiener (1943) tested a further 25 white persons, who were all negative.

When testing a series of Nigerians we found one who gave positive results with three rabbit anti-N sera and negative results with two rabbit anti-M sera. With a third rabbit anti-M serum which had given normal results with many Europeans this subject gave strong agglutination. The specimen was further found to be negative with two human anti-M sera. It occurred to us that we had possibly rediscovered the antibody described by Landsteiner *et al.*, and we proceeded to look up previous results obtained with this serum, and to watch for further anomalies. One more group N Nigerian was found to be positive. In all we were able to find 43 group N negroes who had been tested with this serum, of whom two, as already stated, were positive, while all of the 173 group N Europeans and 15 group N Asiatics so tested were negative. It is probable that many other Europeans had been tested with negative results. The large number of negative Europeans shows that the antigen cannot have been Kell, Lutheran, or any of the commoner known blood group antigens.

We later tested 26 group N specimens from South African Bantu, which were kindly sent to us for the purpose by Dr. A. Zoutendyk. All were negative with several separately absorbed batches of the original rabbit serum, but the serum may by this time have deteriorated, and we had no positive control.

Of the two positive persons, the first was A_1, N, cDe/cDe (or cDe/cde) and the second O, N, CDe/CDe (or CDe/Cde).

It is unfortunate that when these anomalous agglutinations were found the rabbit which had produced the antibody had long been dead; there was little left of its serum, and that little was of course very old. We made repeated attempts to secure further specimens of blood from the positive subjects in order to immunize further rabbits, but no specimens could be obtained.

We do not claim to have proved that the antigen found by us is the same as that described by Landsteiner *et al.*, but the resemblance is suggestive. The difference in frequency between negroes and Europeans for the antigen of Landsteiner *et al.* is statistically highly significant, and this fact alone makes it desirable to recover the antibody and use it for further anthropological investigations. The association with N and MN is significant but not highly so. If the antibody is

recovered it will be important to investigate its possible relation to the MNS system and to find out whether, for instance, the gene controlling the antigen is an allele of S and s, or possibly occupies a third locus closely linked to those for MN and Ss. The rabbit which yielded our serum had been immunized only with the red cells of group M persons. If the new antibody is an immune one, therefore, the antigen must in this case have been present in the blood of an M person. If this is so the slight possibility is eliminated that the agglutinations observed were the property of a rare allelic variety of N.

A Suggestion

Our object in describing this somewhat abortive investigation is to draw attention to the existence of one or possibly two antigens which appear to be commoner in negroes than in Europeans, antigens which are possibly related genetically to the MNS blood group system, and to which rabbits fairly readily make antibodies. It is also possible that such an antigen might, on very rare occasions, if present in blood used for transfusion, provoke the development of the antibody in the serum of the recipient. We should therefore like to suggest that workers who, unlike ourselves, have direct access to negro populations should consider making an attempt to repeat the preparation of such an antibody and to investigate the genetics and anthropology of the antigen detected by it. It is suggested that several batches each of about 10 rabbits should be immunized with the pooled red cells of about 20 group N negroes, each batch of rabbits being injected with a different pool of negro cells. As some group N negroes certainly carry the antigen and group M negroes may not, it seems best to choose only those of group N, whatever may be the true genetic relationship of the "new" antigen. The serum of each rabbit should be divided into two or three portions and each portion absorbed with the red cells of one group A_1, MN European, and then tested against the cells of each of the negro donors.

We shall be glad to exchange sera (including anti-M and anti-N) with any worker who is contemplating such an investigation, or with any worker who has found anti-M or anti-N sera giving anomalous results, or who has discovered an unidentifiable antibody in the serum of a patient transfused with the blood of one or more negroes.

At the time of going to press we have just obtained a further sample of the blood of the original positive subject, through the kindness of Dr. D. R. Cannon and Mr. N. A. Barnicot. We are continuing our investigations with the collaboration of Dr. J. N. Marshall Chalmers.

We are indebted to Dr. D. R. Cannon, of the Yaba Medical Research Institute, Lagos, for sending the specimens and to Dr. J. A. Fraser Roberts for advice on statistics.

REFERENCES

Landsteiner, K., Strutton, W. R., and Chase, M. W. (1934). *J. Immunol.*, 27, 469.

Wiener, A. S. (1943). *Blood Groups and Transfusion*, 3rd ed., p. 264 Springfield, Illinois.

Adrenocorticotropic hormone being in very short supply, every possible source is being explored. In *Nature*, February 17, page 280, is a brief note on its preparation from whale pituitaries by Norwegian workers. One kilo of pituitaries, from about 50 fin whales and blue whales, was extracted by methods similar to those used on pig and sheep pituitaries and yielded 0.5 g. A.C.T.H. with an activity equal to 1.4 times the Armour standard.

Medical Memorandum

Islet-cell Tumour of the Pancreas

Islet-cell tumour of the pancreas is a well-recognized, though uncommon, cause of spontaneous hypoglycaemia. It may occur at any age, but is rare in infancy and after the age of 50. Most cases are found between 20 and 50, although a case in a 24-hour-old infant has been reported (Sherman, 1947). Our patient was 69, older than any other upon whom a successful operation has been performed. Howard, Moss, and Rhoads (1950) summarized all the 398 cases described up to 1950. Of these, some 200 have been operated upon for hyperinsulinism. In 150 patients the tumour or tumours were enucleated, while in about one-third of this number, no tumour being found, a partial resection of the pancreas was carried out. The operative mortality was about the same in both types of operation (9%), and the end-results were good in both sets of survivors, some 85% being cured.

With its diverse symptomatology the disorder may readily be mistaken for epilepsy, cerebral tumour, neurosis, psychosis, narcolepsy, and many other conditions. In elucidating such symptoms, islet-cell tumour may profitably be remembered. The case here reported is typical except for the age of the patient.

Case Report

A married woman aged 69 was admitted to hospital on January 23, 1950. In childhood she had had attacks of measles, whooping-cough, and bronchitis, but during forty years of married life had had no illnesses or operations, apart from mumps some 20 years ago. She was an only child; her parents died in old age and she had a healthy son and daughter.

Earlier Symptoms

Symptoms due to the islet-cell tumour had first appeared in 1945, when one morning she failed to waken, remaining unconscious until 11 p.m. that day. She then recovered spontaneously, ate a meal, and slept throughout the night. She remained well until November, 1946, when, after an attack of tonsillitis, she again failed to waken at the usual time. Four or five similar attacks followed, consciousness being regained in the afternoon or evening. On November 12 she was first admitted to the Royal South Hants and Southampton Hospital for investigation. She was seen to be a healthy-looking woman, and appeared rather younger than her age. Mentally she was a little vague and was inclined to repeat phrases. Her speech was slurred. Examination of her central nervous system revealed no abnormalities. The arcus senilis was present. The blood pressure was 170/110 mm. Hg, but the heart was otherwise normal. No abnormalities were noticed in the chest or abdomen. Lumbar puncture showed a normal fluid.

On November 15 she refused her lunch and lapsed into semicoma. The blood sugar was 38 mg. per 100 ml. On November 17 two further attacks occurred, which were relieved 20 minutes after the oral administration of 10 g. of glucose. Next day another hypoglycaemic episode responded to intravenous administration of 50% glucose solution. On November 19 a glucose-tolerance test was performed, with these results: 8 a.m. (fasting), 44 mg. blood sugar per 100 ml. (capillary blood); 50 g. glucose was then given orally; 8.30 a.m., 99 mg.; 9.45 a.m., 117 mg.; 10.15 a.m., 153 mg.; 10.45 a.m., 124 mg.

On November 27 the patient had no breakfast, and two-hourly samples of blood were taken, the glucose content of which was: 8 a.m., 47 mg. per 100 ml. (capillary blood); 10 a.m., 38 mg.; noon, 35 mg.; 2 p.m., 31 mg.; 4 p.m., 89 mg. She thus fulfilled the diagnostic criteria of Whipple for the diagnosis of hyperinsulinism, which are that (1) the

fasting blood-sugar level should be less than 50 mg. per 100 ml.; (2) there are symptomatic attacks of hypoglycaemia, which occur only when the patient is fasting; and (3) relief of such attacks is produced by administration of glucose, without the patient knowing that glucose is being given.

The attacks of hypoglycaemia were therefore thought to be due to an islet-cell tumour of the pancreas, the low fasting blood sugar excluding the possibility of reactive hyperinsulinism. The patient refused to undergo operation and was discharged home on a high carbohydrate diet. She remained free from attacks until shortly before Christmas, 1949. She had been gaining weight considerably and decided to reduce it by restricting her intake of carbohydrate. Thereupon the attacks of hypoglycaemia returned, her failure to waken in the morning again drawing attention to them.

Present Attack

The patient was readmitted to hospital on January 23, 1950. During the first few days she had several attacks of hypoglycaemia shortly before breakfast. She usually responded to subcutaneous injections of adrenaline, 8 minims (0.5 ml.), followed by oral glucose. It was then found that, in order to prevent the attacks, it was necessary to give her a carbohydrate meal at 2 a.m., a procedure which was followed until her operation.

On January 25 her blood sugar at 11.15 a.m. was 64 mg. per 100 ml. after a normal breakfast at 7.30 a.m.; on January 28, at 4 p.m., after her usual lunch at midday, it was 32 mg. per 100 ml. On neither occasion was the patient clinically hypoglycaemic, a point which is referred to later.

On January 27 food was not given; her blood-sugar levels were: at 6 a.m., 65 mg. per 100 ml. (venous blood); 8 a.m., 31 mg.; 10 a.m., 14 mg.; 12.15 p.m., 12 mg.; 1 p.m., 23 mg.; 2 p.m., 28 mg.

These figures illustrate two features known to be associated with islet-cell tumours of the pancreas: (1) the tendency to spontaneous recovery from the hypoglycaemia; and (2) the lack of correlation between the clinical attacks and the blood-sugar level. At 12.15 p.m., when the blood sugar was 12 mg. per 100 ml., she merely felt faint, but was still able to co-operate, yet at 2 p.m., when her blood sugar had risen to 28 mg. per 100 ml., she was incoherent, restless, and so difficult to manage that the tests could not be continued.

On January 30 an intravenous glucose-tolerance test was performed, the patient fasting; the blood-sugar levels were: fasting, 33 mg. per 100 ml. (capillary blood); 50 ml. of 50% glucose solution was given intravenously; after five minutes the blood-sugar level was 158 mg. per 100 ml. (capillary blood); 15 minutes, 171 mg.; 35 minutes, 335 mg.; 45 minutes, 292 mg.; 60 minutes, 111 mg.; 90 minutes, 84 mg.; 120 minutes, 71 mg.; 180 minutes, 64 mg.

On February 2 a series of fasting blood sugars was obtained, followed immediately by intravenous injection of 40 ml. of 50% glucose solution, with the following results:

Fasting	Capillary Blood Sugar	Venous Blood Sugar
At 10 a.m.	39 mg. per 100 ml.	28 mg.
,, 11 ,,	34 ,, ,,	
,, noon	31 ,, ,,	
,, 1 p.m.	30 ,, ,,	
,, 2 ,,	31 ,, ,,	22 mg.
5 min. after glucose	225 ,, ,,	
10 ,, ,, ,,	284 ,, ,,	
30 ,, ,, ,,	128 ,, ,,	
45 ,, ,, ,,	77 ,, ,,	
60 ,, ,, ,,	69 ,, ,,	
90 ,, ,, ,,	38 ,, ,,	
120 ,, ,, ,,	36 ,, ,,	
150 ,, ,, ,,	28 ,, ,,	

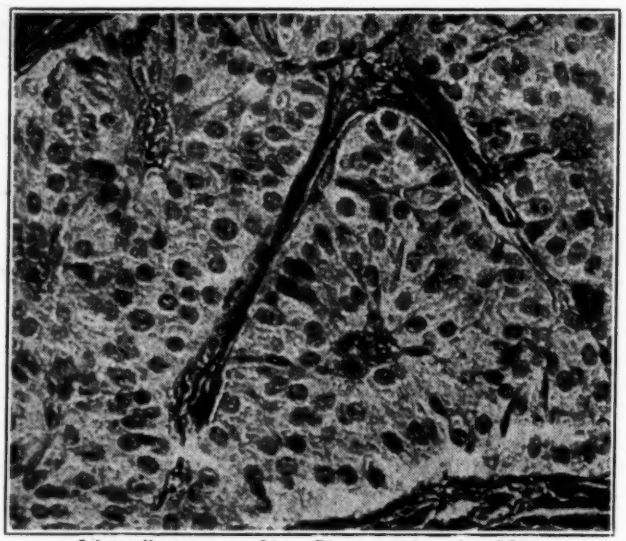
Gastric juice was withdrawn during the first part of the test to ascertain if there was any alteration in the secretion of free hydrochloric acid; unfortunately achlorhydria was found.

The patient now consented to operation. The tumour was enucleated on February 15 by Mr. Raymond Purvis, under general anaesthesia administered by Dr. Oakley White.

The condition of the patient was good, but by 10 p.m. she was not yet conscious. A catheter specimen of urine was found to contain large quantities of sugar and acetone. At 1 a.m. on February 16, 40 units of soluble insulin was given and 40 units more was injected at 5 a.m., the urine being still loaded with sugar and acetone. At 9 a.m. she was conscious; her urine now contained only a trace of sugar and no acetone. Her blood sugar was 104 mg. per 100 ml. On February 17 the urine again contained large quantities of sugar and acetone; the blood sugar was 304 mg. per 100 ml. Thirty units of soluble insulin was given. Thereafter no further glycosuria occurred and no more insulin was needed.

The histological report of the tumour was as follows: "A tumour 1.2 cm. in diameter, of grey tissue, clearly defined but not encapsulated, with a little normal pancreas around. Histologically this is an islet-cell tumour. The cells resemble those of the islets, but are larger. No mitoses are seen in the cells. The cells are in masses divided by strands of dense fibrous tissue. There is no definite capsule. The pancreas around is compressed, and a little fat necrosis with leucocyte reaction is seen. The tumour appears simple."

On March 23, with the patient fasting, blood-sugar estimations were carried out at hourly intervals from 10 a.m. to



Islet-cell tumour. Van Gieson stain. (× 350.)

2 p.m. At this point 30 ml. of 50% glucose solution was given by intravenous injection, and during the next 150 minutes eight further blood-sugar estimations were carried out. In this way a series of figures comparable to those found on February 23 was produced.

Fasting	Capillary Blood Sugar	Venous Blood Sugar
At 10 a.m.	118 mg. per 100 ml.	
,, 11 ,,	97 ,, ,,	
,, noon	102 ,, ,,	
,, 1 p.m.	94 ,, ,,	
,, 2 ,,	88 ,, ,,	79 mg.
5 min. after glucose	194 ,, ,,	
10 ,, ,, ,,	176 ,, ,,	
30 ,, ,, ,,	154 ,, ,,	
45 ,, ,, ,,	118 ,, ,,	
60 ,, ,, ,,	102 ,, ,,	
90 ,, ,, ,,	88 ,, ,,	
120 ,, ,, ,,	88 ,, ,,	
150 ,, ,, ,,	86 ,, ,,	

The difference between the results of these tests before and after operation is well illustrated in the tables.

The patient was discharged from hospital on April 10, cured of her spontaneous hypoglycaemia and with her wound almost healed.

I am indebted to Dr. K. M. Robertson for permission to publish the case, and for his help and encouragement; to Mr. Raymond Purvis, who performed the operation; to Dr. Oakley White, the anaesthetist; to Dr. H. H. Gleave for the histological report; to Dr. R. H. Slater for the biochemical analyses; and to Dr. C. E. Brierley, the patient's general practitioner.

F. J. Y. WOOD, M.B., B.Chir., M.R.C.P.,
Late House Physician,
Royal South Hants and Southampton Hospital.

REFERENCES

Howard, J. M., Moss, N. H., and Rhoads, J. E. (1950). *Int. Abstr. Surg.*, **90**, 417.
Sherman, H. (1947). *Amer. J. Dis. Child.*, **74**, 58.

Reviews

HILTON'S METHOD

Rest and Pain. By John Hilton, F.R.S., F.R.C.S. Edited by E. W. Wall, M.D., Ch.B., B.Sc., and Elliot E. Philipp, M.A., M.B., B.Chir., M.R.C.S., M.R.C.O.G., in collaboration with H. J. B. Atkins, D.M., M.Ch., F.R.C.S. (Pp. 503; 103 figures. £1 5s.) London: G. Bell and Sons. 1950.

It is natural to ask why Hilton's *Rest and Pain,* some 90 years after its first publication in the pre-antiseptic era of surgery, continues to be not only a classic but a classic that is read and not just kept on the shelves of our reference libraries. The answer is found partly in the author's admirably lucid English, written in lecture form, so much easier to read than a dry-as-dust treatise, but still more in the qualities of John Hilton himself, which illumine all his lectures. Hilton was a great surgeon-anatomist, entering surgery through the dissecting-room before the divorce between physiology and anatomy—a divorce so necessary for progress but so unfortunate in some of its consequences. For Hilton every operation was a demonstration of anatomy to his students and an experiment in physiology. His zeal for truth was a flame within him and his energy in its pursuit untiring. At the age of 57, at the height of his fame and consulting practice, hearing of the death of a patient whose case had interested him, he immediately wrote and obtained permission for a post-mortem examination. He continues, "I went to the house early on the following morning: the hearse was at the door, so I had only time to unscrew the coffin and examine the leg." From the specimen thus obtained he wrote what must have been the first accurate account of acute osteomyelitis. The candour and lucidity of his case reports, and the evidence of long and profound thought before he came to his conclusions, make this book one that should appeal to every medical student, whether qualified or unqualified, who is interested in his profession.

His conception of referred or, as he called it, "sympathetic" pain was far in advance of his time, and has had a profound influence on subsequent work on this subject, while his account of how he opened abscesses by "Hilton's method," as it is now universally called, is a fine example of his clear, logical thinking and of the punctilious care that he devoted to all his work. As we read his words we can sense across the years what an exciting and inspiring teacher he must have been.

This edition is well printed and admirably produced. Its value is greatly enhanced by a short but scholarly biographical study of John Hilton by Mr. Hedley Atkins. At the end of each lecture there are added appendices which comment usefully on the changes that the progress of surgery has brought since Hilton's time. For the most part these are excellent, but in some the proof-reading has been at fault. In the appendices to Lecture I, for instance, we read that growth is the *Antitype* of Repair and find this remarkable sentence: "The bladder is the commonest site for stone in the urinary tract in children, especially boys, and in the first place reaches the bladder from the kidney." But such blemishes are few and scarcely detract from the outstanding excellence of the book, which should have a wide circulation.

JOHN MORLEY.

TEXTBOOK OF PATHOLOGY

Dible and Davie's Pathology. An Introduction to Medicine and Surgery. By J. Henry Dible, M.B.(Glas.), F.R.C.P. Third edition. (Pp. 963; 417 illustrations, including 9 plates in colour. £2 14s.) London: J. and A. Churchill. 1950.

It is a pleasant duty to welcome the third edition of this reliable and well-planned textbook of pathology, for which Professor Dible now assumes the sole responsibility. The book has been thoroughly overhauled, much of its content rewritten, and large sections extensively altered. In spite of this it remains what it has always tried to be—a sound introduction to medicine and surgery for the medical student. Structural change and functional alteration are considered together, and both are skilfully correlated with clinical signs and symptoms. The book covers a remarkably wide field, and by careful omission of irrelevant detail it contains all the pathology the undergraduate student need know without overburdening his memory and confusing his mind with minutiae which are of little educational value to him.

The author's long experience as a microbiologist entitles him to write authoritatively on the bacteriological and immunological aspects of infection. For this reason, the descriptions of diseases originating in infection are exceptionally well balanced and free from bias.

Professor Dible refers in his preface to the recent and spectacular progress which has been made in several fields of medical science. As we do not yet understand the basic significance of these discoveries, we cannot predict that they will eventually shatter our present beliefs. We are far from certain, for instance, that the suprarenal cortex and the pituitary dominate our physical existence and decide the outcome of our diseases. We therefore agree that until this amorphous mass of new knowledge can be truly orientated to the whole of the medical sciences we should not consider rewriting our textbooks of pathology.

GEOFFREY HADFIELD.

SQUINT

Worth and Chavasse's Squint. The Binocular Reflexes and the Treatment of Strabismus. By T. Keith Lyle, C.B.E., M.A., M.D., M.Chir.(Cantab.), M.R.C.P.(Lond.), F.R.C.S. Eighth edition. (Pp. 319; 200 figures. £1 15s.) London: Baillière, Tindall and Cox. 1950.

Clinical Orthoptic Procedure. A Reference Book on Clinical Methods of Orthoptics. By William Smith, O.D. (Pp. 393; 70 illustrations. £2 16s.) London: Henry Kimpton. 1950.

The first edition of Claude Worth's *Squint* appeared in 1903. It was based on some ten years' detailed clinical studies on a much neglected subject. In 1929 the sixth and last edition revised by Worth appeared, and it was substantially the same book as he brought out twenty-six years previously. The revision of the seventh edition fell to Bernard Chavasse. Its appearance in 1939 was an even more definite landmark than Worth's original publication, for Chavasse presented a broad evolutionary approach to the subject, lifting it from the rather narrow clinical groove in which it had been confined. The mental climate that has since developed in all work on squint is that fundamentally determined by Chavasse. His untimely death in 1941 in a motor accident has left a gap difficult to fill.

The publishers have been fortunate in their choice of Mr. T. Keith Lyle for the revision of the new

edition that has become necessary, and Mr. Lyle has discharged his duties with due reverence to the two pioneer efforts. He has retained some of the structure of Worth's book, and has gone to great pains to clarify Chavasse's teaching. Intensely original as Chavasse's contribution was, it was unfortunately not presented in the best possible manner, and it is gratifying to find in the present edition a clearer presentation. Mr. Lyle has added from his own considerable contributions to squint and orthoptics, so that this new book may well be taken as something like a definitive text that will stand for many years.

Clinical Orthoptic Procedure appears to have been written for American students of optometry and of orthoptics. It is a rather elementary exposition which aims at comprehensiveness in presenting a multitude of methods, the purpose of which is not always obvious to an English reader.

ARNOLD SORSBY.

CHEST AND HEART

The Chest and the Heart. Volume 1: The Chest. Edited by J. Arthur Myers, Ph.D., M.D. (Pp. 1,021; illustrated. Volumes 1 and 2 together, £7 7s.) Springfield, Illinois: Charles C. Thomas. Oxford: Blackwell Scientific Publications. 1948.

This book is stated to have originated as an expansion of two books published in 1927 entitled *The Normal Chest* and *Modern Aspects of the Diagnosis, Classification and Treatment of Pulmonary Tuberculosis*. Its scope has been enlarged to include non-tuberculous diseases of the chest, extra-thoracic tuberculosis, and heart disease. The sections on extra-thoracic tuberculosis and on heart disease are contained in the second volume [reviewed below]. The first volume is a composite production by a large number of authors, and suffers to some extent both from its origin in older textbooks and from the difficulties inherent in textbooks of multiple authorship. Several of the articles, while excellent in themselves, fit rather awkwardly into the general scheme of the book. For instance, Chapter I, on the "Developmental Anatomy of the Chest and the Thoracic Organs," contains a useful summary of knowledge on this subject, but the emphasis on the quantitative details of rates of growth of various structures is perhaps given more space than its practical importance warrants. The chapters on "Pneumonia" and on "Acute Pneumonitis" overlap to a considerable extent, and the uninformed reader is likely to be left with a rather confused picture after reading them both. Chapters such as the brief review of the chemistry of the tubercle bacillus by Esmond Long and Florence Seibert stand out as excellent summaries of their subject matter; others appear by comparison verbose and ineffective.

Criticisms of detail can always be made in reviewing any book as large as this, but the occasion for such criticism appears to be unduly frequent in this book. On page 71 in the section on "The Physiology of Respiration" there is the surprising statement that "the functional residual air approximates 3,000 ccs. and is composed of gas that has come into equilibrium with blood in the capillaries." In the illustration of surface markings on page 113 the greater fissure is shown starting from the spinous process of the second thoracic vertebra; it is now generally agreed that the fourth or fifth spinous process is a more accurate surface marking for the level of the posterior end of the greater fissure. On page 616 the extraordinary word "radioluscent" [*sic*] occurs. The inelegant and illogical hybrid "radiolucent" appears to be gaining a certain amount of uncritical acceptance; if a word analogous to translucent is needed for use in connexion with *x* rays, "transradiant" is at least logical.

There is a brief chapter entitled "Pneumonitis Produced by Spores of the Fungus *Coniosporium corticale* E and E," which describes a syndrome due to inhalation of dust arising from timber infected by the fungus mentioned, and apparently allied to the well-known "thresher's lung." It would obviously have been preferable to bring these cases into proper perspective by describing them as one of a larger group of illnesses produced by contact with mouldy vegetable matter. In this chapter appears the remarkable statement that "physicians interested in industrial hygiene, for the most part, accept the theory that all non-organic dusts with the exception of silicon dioxide may be inhaled with impunity over long periods of time." The advice given on page 693 about the treatment of actinomycosis would not now be generally accepted. Penicillin doses as small as 5,000 units every three hours or 40,000 units per day are suggested, and individual doses of 100,000 to 200,000 units up to a total of 3,000,000 to 4,000,000 are regarded as heavy. This is no doubt due to the fact that the section was written some time ago.

An interesting modification of the classical sequence of procedures in examination of the chest is advocated on page 164. Inspection is relegated to the fourth place, and the suggested sequence is thus: palpation, percussion, auscultation, inspection. This change is introduced in order to include in the clinical examination inspection not only with the unaided eye but also with the bronchoscope, the thoracoscope, the *x* ray, and the microscope. This may perhaps be regarded as an ingenious attempt to restore unity to the scheme of examination of the chest, and to place methods requiring instrumental aid in their proper perspective. Certainly there is much to be said in favour of regarding radiography as an essential part of the clinical examination of the chest—a part falling into its place alongside inspection, palpation, percussion, and auscultation. But it may be doubted whether the proposed alteration in the normal sequence of methods of physical examination presents any advantage commensurate with the disadvantage of disrupting a logical order which has stood the test of time.

These rather disconnected comments may serve to show that, while this volume contains sections which are of value and provide reliable and readable accounts of their subject matter, as a whole it is very uneven and unlikely to give a balanced and connected view of chest disease.

J. G. SCADDING.

The Chest and the Heart. Volume 2: The Heart. Edited by C. A. McKinlay, M.D. (Pp. 825; illustrated.)

In these days when there appears to be some danger of the individuality of English medicine being swamped by the spate of literature pouring out of the U.S.A., one may perhaps be forgiven for wondering why the cardiological section of these two large volumes has been added to the deluge; for in dullness, sketchiness, inadequate illustration, poverty of description, omissions,

and remarkable disregard for modern techniques it has scarcely an equal in this country.

Approximately half of the second volume is concerned with the heart, and it must be said at once that it is unfortunate that the editors did not confine themselves to the respiratory system. There are, of course, some notably good chapters: thus, there can be nothing but praise for the article on the physiological aspects of the electrocardiogram by Richard Ashman, that on coronary sclerosis by Arlie Barnes, and that on arterial hypertension by Irving Page; and the authors of the chapters on roentgenology of the heart, on rheumatic fever, and on bacterial endocarditis have treated their work seriously and maintained a high standard. On the other hand, the chapters on congenital heart disease, cor pulmonale, cardiovascular syphilis, cardiac arrhythmia, the heart in thyroid disease, and diseases of the pericardium read like unprepared chats to the lay public.

As remarked in the review [above] of volume 1, the present work is a combination and modernization of two earlier books on the chest. As it progressed the scope of the volume was gradually enlarged, and finally included the cardiovascular system. This may explain why the cardiac section gives the impression of a none too careful postscript.

PAUL WOOD.

MONOGRAPH ON DIABETES

Types of Diabetes Mellitus and their Treatment. By Arthur R. Colwell, M.D. (Pp. 97. 16s. 6d.) Oxford: Blackwell Scientific Publications. 1950.

This small monograph covers most aspects of diabetes from diagnosis to treatment of coma. It is well produced and clearly written by an author of high reputation with many worth-while publications on his subject. But it is difficult to know what useful purpose this book serves. It does not contain sufficient detail to enable a practitioner to undertake treatment from its pages or to interest an expert by its theoretical considerations. Some of the author's views are conservative, especially his advocacy of a carbohydrate–fat ratio in the diet of 1 : 1 as most generally useful and "the optimal ratio with insulin."

The title of the book is stimulating and led the reviewer to hope that various different fundamental types were to be described. But these proved to be not different types but grades of diabetes, mild, moderate, severe. The title therefore merely makes well-known quantitative distinctions and not new qualitative ones.

R. D. LAWRENCE.

GASTROSCOPY

Gastroscopy. The Endoscopic Study of Gastric Pathology. By Rudolf Schindler, M.D., F.A.C.P. Second edition. (Pp. 433; 366 figures, 10 coloured plates. £7 10s.) Chicago, Illinois: University of Chicago Press. London: Cambridge University Press. 1950.

The first edition of Schindler's book on gastroscopy was a valuable contribution to the subject and was carefully studied by all those interested in it. Not all agreed with his interpretations, particularly in relation to gastritis, for it was felt that the limits of normality were greater than had been suspected, and in any case the diagnosis of "gastroscopic gastritis" did not correlate well with clinical syndromes. Schindler, with the collaboration of the optician Wolf, performed pioneer work in developing the flexible gastroscope, which has a relatively small but useful place in the investigation of gastric disorders. What has been needed for some time has been a simple straightforward monograph on gastroscopy.

Schindler's second edition, although a tribute to his industry, unfortunately makes the subject more complicated and does nothing to crystallize the experience of recent years. It is unnecessarily long, and many of the illustrative case histories are irritatingly detailed and could well have been shortened or omitted.

There are in all countries two schools of doctors—those who like to simplify procedures, and those who seem unwilling or unable to dispense with the non-essentials. There is no doubt that gastroscopy as practised by Schindler is much more complicated than in many other centres. Those wishing to learn gastroscopy will profit more from visiting and watching those who have had long experience than from reading the second edition of this book. For the expert the second edition is of considerable interest and should certainly be read. The book is well illustrated with many photographs and coloured plates.

F. AVERY JONES.

BOOKS RECEIVED

Review is not precluded by notice here of books recently received

Heart Disease in Pregnancy. By A. M. Jones, M.Sc., M.B., F.R.C.P. (Pp. 57. 6s.) London: Harvey and Blythe. 1951.

Color Atlas of Pathology. Prepared under the auspices of the U.S. Naval Medical School of the National Naval Medical Center (Pp. 546. 140s.) London: J. B. Lippincott. 1951.

Any Wife or Any Husband. By "Medica." (Pp. 159 7s. 6d.) London: William Heinemann. 1950.

The Conquest of Malaria. By Dr. J. Jaramillo-Arango (Pp. 125. 21s.) London: William Heinemann. 1950.

Auto-Erotism. By W. Stekel, M.D. (Pp. 289. 16s.) London: Peter Nevill. 1951.

Management of Peripheral Arterial Diseases. By S. S. Samuels, A.M., M.D. (Pp. 345. 60s.) London: Geoffrey Cumberlege. 1951.

First Aid and Fire Precautions. Issued by the R.S.P.C.A 7th ed. (Pp. 32. 6d) London: R.S.P.C.A. 1951.

Sex Variants. By G. W. Henry, M.D. (Pp. 1,130. 42s.) London: Cassell 1950.

The Student's Handbook of Surgical Operations. By Sir Frederick Treves. 9th ed. Revised by Sir Cecil Wakeley, K.B.E., C.B., D.Sc., P.R.C.S. (Pp. 580. 15s.) London: Cassell. 1950

How to Write Technical Books. By J. Gloag. (Pp. 159 12s. 6d.) London: George Allen and Unwin. 1950.

30 Years with G.B.S. By Blanche Patch. (Pp. 256. 12s. 6d.) London: Victor Gollancz. 1951.

Flemones Retroperitoneales. By Dr A. V.-C. Ortiz (Pp. 271. No price.) Barcelona: Byp. 1950.

Verhandlungen der Deutschen Gesellschaft für Kreislauf forschung. Edited by Professor H. Schaefer. Vol. 16 (Pp. 274. M. 26.) Darmstadt: Dietrich Steinkopff. 1950.

Die Staublungenerkrankungen. Edited by Professor K. W. Jötten and Professor H. Gärtner. (Pp. 338. M. 20.) Darmstadt: Dietrich Steinkopff. 1950.

The Early Smallpox Epidemics in Europe, and the Athens Plague After Thucydides. (In Greek.) By Professor G. P. Alivizatos. (Pp. 356. No price.) Athens. 1950.

BRITISH MEDICAL JOURNAL
LONDON
SATURDAY MARCH 3 1951

PAYING FOR THE N.H.S.

For a great many years before July, 1948, the B.M.A. had been working out its own ideas for a comprehensive medical service, but in those days it was more concerned with the organization of such a service than with the economics of it, though in general it may be said that on the basis of experience of N.H.I. it was in favour of an insurance scheme. Unfortunately many people in this country still think that they are paying for the Health Service through their national insurance contributions, and the Minister of Health, Mr. Hilary Marquand, usefully reminded the country a few days ago that the insurance contributions accounted for only £40,000,000 of the £400,000,000 which is now the annual bill for the N.H.S. Ninety per cent of the cost is paid for out of taxation, and if the costs continue to rise the taxpayers (that is the bulk of the wage earners and salary earners in the country) will have progressively less choice in the spending of their money. Not only that, but the illusion of getting something for nothing undoubtedly lessens the sense of responsibility of those who find they can now get, apparently free of charge, those things that formerly they were prepared to buy for themselves—such household remedies as aspirin, purgatives and laxatives, first-aid dressings, cotton-wool, and bandages. The B.M.A. gave general approval to the Beveridge report of 1942, an approval which endorsed what the profession has always held—namely, that there should be no financial obstacle between the patient and the treatment he needs. With even greater force could one argue that there should be no financial obstacle between the people of this country and the food they need if body and soul are to be kept together, but to carry the argument to its absurd conclusion and to state that the man and the woman in the home should not pay for their bread-and-butter would soon land us in a State peopled by men and women without initiative or sense of responsibility.

The medical profession is as much concerned as the Government to see that the National Health Service is a success. If it turns out to be a costly failure, then the reputation of this country will suffer a severe setback in the eyes of all those other countries which are watching very closely the outcome of this gigantic experiment; and it cannot be denied that some countries would not be displeased to see the N.H.S. come to a sticky end. Even in times of unparalleled prosperity there would have to be some limit to the amount of money spent on the medical services, but, now that as a country we are entering a phase in which each item of State expenditure will have to be microscopically scrutinized, the medical profession will be just as much concerned as the Ministry of Health to see that the essentials of the Service have not in part to be sacrificed because of the waste of money on non-essentials. It is, for example, obvious that there are large numbers of people who are now going about with two pairs of spectacles at the cost of the State when one pair would have done. It is obvious that thousands of persons are going to their doctors in order to get, apparently free of charge, those domestic remedies which formerly they were content to buy for themselves. The suggestion that was discussed previously in these columns,[1] that there might have to be charges throughout the Service, in no way offends against the idea of a comprehensive medical service or against the idea that there should be no financial obstacle between the patient and the treatment he needs. There is, for example, much to be said for the Australian arrangement whereby the essential and expensive drugs such as the antibiotics should be completely free of charge while the rest should be paid for. It should not pass the wit of the administrators to make provision for such special categories as old-age pensioners.

In its evidence to the Select Committee on Estimates[2] the B.M.A. suggested that there was a case for inquiry into the possible levying of a "hotel charge" for board on patients admitted to hospitals, and that a contribution towards the cost of appliances could also be made. If some such economic reform on these lines could be worked out, then the State would in effect be doing for the medical services what it is doing for the "food services"—subsidizing the service to such an extent as to relieve the economic strain on the consumer while at the same time leaving the consumer with free choice of the commodity and a sense of individual responsibility for paying his own way without hardship. Any Government which seeks to impose certain charges in the N.H.S. will have to take its courage in both hands, and before doing so will have to be at great pains to see that the public fully understands the whys and the wherefores of the case. It could, however, well be argued that, with the introduction of token charges in relation to the different items of medical care, the country would get both a more efficient and a less costly comprehensive medical service. This is a subject into which the medical profession might well inquire in conjunction with economists.

1 *British Medical Journal*, 1950, **2**, 1262.
2 *British Medical Journal Supplement*, 1951, **1**, 48.

OCCUPATION AND PEPTIC ULCER

For 50 years up to 1939 peptic ulcers were ascribed to a fault in bodily constitution, and the effect of the environment was neglected. In Germany and the German sphere of medical influence neurogenic theories were popular, and just before the 1914–18 war ideas of vagotonia and sympatheticotonia (in France, *hypersthénie* and *hyposthénie*) crystallized into the modern concept of a constitutional autonomic instability brought out by psychological stress. Meanwhile in England interest was focused on the more practical matter of diagnosis, and Hurst and Moynihan were conducting a minor revolution. So far from duodenal ulcers being rare, they showed that the duodenum was the commonest site and clinical diagnosis was extremely easy. When Ryle repeated pre-war German work on fractional test meals Hurst suggested that constitutional hyperchlorhydria was the main cause of ulcer, and this became widely accepted. A period of stagnation followed. McCarrison and others showed that in certain native races the incidence of ulcers was altered by diet, but medical teaching was little affected. Ulcers ran in families, and a generation trained in the mistaken logic of "*either* heredity *or* environment" failed to grasp that the two always interact.

The 1939 war led to a more reasonable attitude when the greatly increased incidence of ulcers became evident. Alsted[1] described the changing sex incidence of haematemesis in Denmark; and Jennings,[2] after vainly trying to have perforated ulcer made a notifiable disease, published the results of four years' research into the changing incidence of perforations, deducing that there must be several kinds of ulcers following different environmental stresses. In the next decade a number of papers attempted to estimate the incidence of uncomplicated ulcers in different populations, but unfortunately statistical criticism shows it is impossible to deduce the occupational incidence of a disease like peptic ulcer from hospital records.

Now for the first time an attempt[3] has been made at direct assessment of ulcer incidence in different occupations. The co-operation of employers and trade union officials was obtained. A social worker interviewed 98.4% of 5,756 employees of 17 different firms, together with 291 skilled and unskilled workers in agriculture and ancillary mechanical trades (the remaining 1.6% was made up of 44 persons who refused to be interviewed and another 52 who were missed for miscellaneous reasons). Preliminary classification showed that there were 3,318 men and 761 women with no dyspepsia, 831 men and 222 women with minor dyspepsia, and 722 men and 97 women with major dyspepsia. Cases were classified as no dyspepsia if they had had no symptoms for five years, or if the symptoms which they described as indigestion were "obviously not gastric." All cases of major dyspepsia were invited to a medical interview; at the same time the reliability of the social worker's classification was tested by selecting at random from the other two groups as controls. In all 1,302 persons were referred for a medical examination, and 98.6% attended. There were nine refusals in the major dyspepsia group and nine in the control groups. Half an hour was allowed for each interview in the major and minor dyspepsia groups. In the no dyspepsia group 10–15 minutes sufficed. Of the 819 cases of major dyspepsia 334 were diagnosed as having, or having had, peptic ulcers. Of the 5,132 cases with minor or no dyspepsia, 474 were interviewed, and two persons with ulcers were found. Of the 334 ulcers 69 were "presumed" from the type of pain, although in an unstated proportion radiology was negative. If the authors had not established this group of presumptive ulcers they would obviously have underestimated ulcer incidence in occupations where patients refused to take time off for a barium meal. In the remaining 265 cases the diagnosis was proved by a positive radiograph or by the story of some complication. There was hospital confirmation of the patient's statement in only 191 out of these 265 cases.

Despite the care taken in this investigation there are several sources of error. Lack of co-operation may have led persons with ulcers to refuse an interview or to minimize their symptoms. Some ulcer patients change their occupation as a result of their ulcer, but this was analysed and believed unimportant. Finally, a serious error might result from relying mainly on clinical diagnosis. The authors had hoped to investigate a random sample of their material radiologically. Unfortunately, unlike mass radiography of the chest, a barium meal means a visit to hospital and a loss of working time, and it was impossible to secure co-operation. A selected sample of 45 persons with major dyspepsia, but without ulcer on clinical judgment, agreed to have a barium meal, and in this small group four ulcers were found. We are not told how often no ulcer was found in the group thought to have ulcers.

Reliance on clinical diagnosis may have been a blessing, for many persons with no history of serious indigestion have a scar in the duodenal cap. One radiologist calls these scars ulcers and diagnoses a

[1] *Changing Incidence of Peptic Ulcer*, 1939, Oxford University Press, London.
[2] *Lancet*, 1940, 1, 444.
[3] Doll, R., and Avery Jones, F., *M.R.C. Special Report Series No.* 276, 1951. H.M. Stationery Office.
[4] Owing to a serious misprint this figure appears as 1·13–1·14%.

duodenal ulcer three times more often than a more cautious colleague. Another radiologist who only diagnoses an ulcer when a crater can be demonstrated or the cap is wildly distorted misses many ulcers. Without operating on a random sample of patients with very slight symptoms it is impossible to decide which radiologist makes the fewest mistakes. On the other hand, assessing clinical results is difficult. Many patients give a long history of indigestion and a short history of pain, and there is room for legitimate differences of opinion on when the ulcer began. An arbitrary decision has to be made in order to calculate the yearly incidence of ulcers at different ages. From the age of 20 to 55 the incidence of duodenal ulcers in men is thought to be surprisingly constant at about 0.13–0.14% per year.[4] The incidence of gastric ulcers, on the other hand, rises from 0.3% at ages 20–25 to just under 0.1% at ages 35–55. The fact that the percentage of men with duodenal ulcers falls from just over 4% in the age group 35–45 to just under 4% in the age group 45–55 suggests that duodenal ulcers heal faster than they form; but other explanations are possible. A curious deduction can also be made from the annual incidence of gastric ulcers. If the incidence of carcinoma of the stomach is taken as equivalent to the death rate the chance of a fresh lesion in the stomach being malignant is about 1 in 10 in men aged 35–45. From 44–55 the chance is 1 in 3, and over the age of 55 a lesion is more likely to be malignant than simple. This contradiction of everyday out-patient experience is presumably an effect of social class. The present investigation confirms the long-suspected greater frequency of gastric ulcers among the lowest grades of workers. Only three gastric ulcers were found in social classes I and II, whereas nine were expected. On the other hand, in social class V, 21 gastric ulcers were found and only 12 were expected.

Little or no light is thrown on the increased incidence of duodenal ulcers. The highest incidence is found in a small group of unskilled workmen. But doctors have double the expected incidence, perhaps because of better diagnosis, while agricultural workers have a low incidence. No increased incidence could be detected in transport workers, and the effect of irregular meals appears to be slight. Duodenal ulcer patients complained slightly more of anxiety over their work than did controls without ulcers. One is left with a feeling of disappointment. Possibly the division into gastric and duodenal ulcers was too simple: the small duodenal ulcer in the youthful bun-eater may be aetiologically distinct from the large one in the middle-aged beer-drinker. If duodenal ulcers really have increased several times in this century it is surprising that occupation has so little effect. Have real differences in incidence been disguised by unavoidable inaccuracies in diagnosis and by the way in which "good firms" were selected for investigation?

THE CASE FOR NEURO-PSYCHIATRY

Neurology can be said to derive from physiology by way of general medicine. This is certainly true for its development in most countries, though Holland is perhaps an exception, since comparative anatomy has there played a highly important role. In German-speaking countries, however, one can trace a significant and fruitful alliance between psychiatry and neurology. The term "neuro-psychiatry" has emerged to connote those aspects of organic mental disease which fall within both provinces or, at any rate, lie across the ill-defined border between the two specialisms. Although this term has not escaped criticism it fulfils a real purpose, and it is a matter of regret that neuro-psychiatry has not received official academic blessing in Britain. This is not to advocate a divorce of neurology in every instance from general medicine. There is room for those who regard all forms of nervous and mental disease as lying within their province, and a department or a chair of neuro-psychiatry might afford benefits to medicine in general and to both psychiatry and neurology in particular. Neurology would derive advantage from a more sympathetic concern with the dynamic aspects of organic mental reactions. Psychiatry would be the richer for the scientific discipline which neurology can offer. We can reflect upon Continental precedents. The debt which we owe to such neuro-psychiatrists as Kussmaul, Pick, Pötzl, Schilder, Gerstmann, Goldstein, Kleist, is incalculable. Even our own Hughlings Jackson might well be ranked among the pioneer neuro-psychiatrists.

In France to-day we can point to one outstanding neuro-psychiatric figure whose long record of original work has alike enriched the study of nervous and mental disorders. Lhermitte, whose paper we publish on page 431, is a household word. One of the keenest intellects in France, endowed with all the culture and charm which we associate with that country, Lhermitte has contributed generously over the past half-century to our sum total of neuro-psychiatric knowledge. We recall his work along clinico-anatomical lines, especially upon the manifold syndromes of the neurology of the aged. His easy familiarity with normal and abnormal neuronic structure has afforded him a foundation upon solid rock. To these purely neurological contributions we can add many which belong more to the domain of psychology. A long series of papers upon the

phantom limb; a masterly addition to our ideas upon the body-image; studies upon hallucinosis; the phenomena of stigmatism; possession, demoniacal and otherwise—come readily to the mind. Lhermitte stands out to-day as one of the most significant figures in Continental neuro-psychiatry. He was honorary president of the International Congress of Psychiatry last September. Vivacious, tireless, a master of a distinctive and rich style of writing, Lhermitte has been and is happily still an inspiration to generations of students and psychiatrists all over the world.

His paper reveals the kind of original thinking so typical of him. The subject of autoscopic visions—specular hallucinations as Féré called them—is a fascinating one. The topic of bipartition of the body-image is one which has intrigued imaginative writers for very many years, and in Germany in particular there are not infrequent references to a *Doppelgänger* phenomenon. Lhermitte has indicated some of these sources, and at the same time has shown that the phantasy of the *romancier* can be paralleled at times by experiences in psychological medicine.

FELLOWSHIP IN CLINICAL RESEARCH

Some thirty years ago Sir Clifford Allbutt threw out the provocative remark that Harley Street was the graveyard of clinical research. This was another way of saying that in those days many men who might have had an aptitude for clinical research found that the doors into it were not so wide open as they might have been. Although the teaching hospitals were attached to the universities in their particular locations in Britain, there was little of that spirit or opportunity for free inquiry which characterizes the university at its best. Since then there has been a steadily increasing provision for clinical research through the establishment particularly of special units in various hospitals, of which the unit under Sir Thomas Lewis at University College Hospital was such an outstanding example. The man who decided to follow his bent for research ran greater risks than his fellow who followed the beaten track of getting on to a hospital staff and building up a consulting practice. He ran the risk of getting left behind in the race for the fruits, professional and monetary, that success in consulting practice brings.

The Medical Research Council has played a predominant part in widening the field of clinical research in this country, and elsewhere in this issue we publish a statement in which the Council gives details of its new scheme for fellowships in clinical research. The research work that has given medicine its most potent therapeutic weapons in the past two decades has been carried out by men working in what is nowadays termed the basic sciences. For example, it was a bacteriologist who discovered penicillin and a chemist who isolated cortisone; the physicist has introduced us to radioactive isotopes. There can be no doubt that the triumphs that lie ahead of us in applied medicine will be achieved by men who, with or without clinical experience, must have had as their starting point those basic sciences relevant to their subjects of inquiry. The medical man who wishes to pursue research will with few exceptions have to start from the firm foundation that the basic sciences give him. The Medical Research Council wisely stresses this point in the details it gives of the fellowships in clinical research, a limited number of which will be available to suitable candidates in the academic year beginning on October 1, 1951. A candidate will have to be medically qualified and should have had at least one year's clinical experience, and during the initial period of the tenure of the fellowship the M.R.C. intends that the fellow should do work in "the relevant non-clinical subject." For example, anyone wishing to do research work in metabolic diseases—and successful in obtaining a fellowship—would be enabled by the M.R.C. to obtain first of all the necessary additional experience in biochemistry.

Those who have had the chance of comparing clinical research as conducted in this country and, for example, in the U.S.A. have often been struck with the fact that the American research worker is more laboratory minded than his British counterpart. This is not to say that our own stress on the clinical aspects of research has not its own advantages, or that an approach to the problems of human disease which starts in the laboratory is without its disadvantages. Nevertheless the clinical research worker cannot but benefit by a more intimate acquaintance with the experimental approach of the laboratory and with the special knowledge of the basic science which is most directly applicable to his own research project. The Medical Research Council is to be congratulated on its new move, a move which, we hope, will bring into still closer contact the worker in the laboratory and the worker in clinical science.

PHAEOCHROMOCYTOMA

Three reports in this issue (pages 440–49) bear witness to the better management of adrenal medullary tumours now possible. This is partly due to knowledge obtained from the unexpected discovery of these tumours at sympathectomy,[1] to the persistent study of hypertension and of sympathetic nerve transmission, and to the revival of adrenergic blockade,[2] originally clearly defined by Dale[3] in 1906.

Phaeochromocytoma may present in a variety of clinical syndromes, which is not surprising, since at least two hormones may be produced[4]—adrenaline and *nor*adrenaline. The clinical features can usually, but not always easily, be attributed to attacks of paroxysmal hypertension,[5] to persistent and often malignant hypertension, or to metabolic disorders suggesting atypical hyperthyroidism or diabetes mellitus.[6] But these syndromes, except the first,[7] are unfortunately more often due to other causes; and so the major clinical difficulty is to know when to suspect the presence of a phaeochromocytoma and apply the relevant special tests. Suspicion should arise with any attacks very suggestive of paroxysmal hypertension; with other hypertensive syndromes where sweating and peripheral vascular spasms occur or the hypertension is very labile; or with atypical metabolic disorders including increased metabolism, glycosuria, or fasting hyperglycaemia,[1 7] and hypertension. Smithwick[1] advises the measurement of cold pressor and postural responses in hypertensive patients; a weak cold response and a strong postural response suggests an adrenal medullary tumour, and is unusual in other types of hypertension.

Three kinds of test are now available to confirm the diagnosis: investigation of the susceptibility of the patient's blood pressure to adrenal stimulation or adrenergic blocking; urinary assays of adrenal medullary hormone derivatives; and radiological or other demonstration of the tumour. Ideally, until we know more, a reasonable suspicion should lead to all three being done. Suspect persistent hypertension should be tested with a suitable adrenergic blocking agent; Goldenberg and Aranow[8] reported only three false negatives in 59 tests with benzodioxane (or piperoxane); dibenamine has also been used[9] and other better drugs will doubtless be evolved. On the other hand, cases in which the hypertension is entirely paroxysmal must have their responsiveness to adrenal medullary stimulants examined, and probably intravenous histamine[10] is the best; alternatively, methylcholine chloride[11] or T.E.A.B.[12] have been used. With either type of test it is important to have a suitable antagonist at hand, to avoid the danger of extreme hypertensive side-effects with the adrenergic blocking agents and excessive paroxysmal hypertension with the adrenal stimulants. For the former, therefore, hypotensive drugs such as hexamethonium bromide and for the latter adrenergic blocking agents should be at hand. Urinary assay, biological or chemical, is as yet merely in the development stage, but very promising.[13 14] It is always desirable to locate the tumour; only infrequently will palpation or an intravenous pyelogram do this. Radiography after properly performed perirenal air insufflation is safe by the technique of Cope and Schatzki,[15] though its use in unskilled hands and employment of more risky techniques have led to its discredit.

A mortality of 12 out of 64 cases before the use of adrenergic blocking agents[16] emphasizes the risk of an unaided but technically good operation. The chief dangers are probably post-operative shock from the after-effects of excessive adrenaline release during the operation before the tumour vessels are clamped, and hypotension after the sudden correction of hyperadrenalinaemia. The former is probably the more serious, and is controllable by careful operative handling supplemented with the use of adrenergic blocking agents during and, if possible, also before the operation.[17] For this purpose dibenamine is preferable to benzodioxane because of its greater potency and more prolonged action, but it is difficult to obtain in this country. The second risk may be minimized by controlled dosage with ephedrine[6] and/or *nor*adrenaline for a few hours or days, and adrenaline can also be used but has more side-effects.

1 Smithwick, R. H., Greer, W. E. R., Robertson, C.W., and Wilkins, R. W., *New Engl. J. Med.*, 1950, **242**, 252.
2 Nickerson, M., *J. Pharmacol.*, Part 2, 1949, **95**, 27.
3 *J. Physiol.*, 1906, **34**, 163.
4 Von Euler, U. S., *British Medical Journal*, 1951, **1**, 105.
5 MacKeith, R., *Brit. Heart J.*, 1944, **6**, 1.
6 Goldner, M. G., *J. clin. Endocrinol.*, 1947, **7**, 716.
7 Raab, W., and Smithwick, R. H., ibid., 1949, **9**, 782.
8 *J. Amer. med. Ass.*, 1947, **135**, 971; ibid., 1950, **143**, 1139.
9 Spear, H. C., and Griswold, D., *New Engl. J. Med.*, 1948, **239**, 736.
10 Roth, G. M., and Kvale, W. F., *Amer. J. med. Sci.*, 1945, **210**, 653.
11 Guarneri, V., and Evans, J. A., *Amer. J. Med.*, 1948, **4**, 806.
12 La Due, J. S., Murison, P. J., and Pack, G. T., *Ann. intern. Med.*, 1948, **29**, 914.
13 Richter, D., *J. Physiol.*, 1940, **98**, 361.
14 Engle, A., and Von Euler, U. S., *Lancet*, 1950, **2**, 387.
15 *Arch. intern. Med.*, 1939, **64**, 1222.
16 *British Medical Journal*, 1949, **1**, 1131.
17 Bartels, E. C., and Cattell, R. B., *Ann. Surg.*, 1950, **131**, 903.

RETROLENTAL FIBROPLASIA

The increasing number of cases of this form of infantile retinal detachment now being reported represents an increase in the frequency of the disease, and not merely an increase in the number diagnosed. Though the affection may occur in infants born at full term it is undoubtedly more common in premature infants, and, since the incidence appears to be proportional to the degree of prematurity, the newer methods which give the very premature a better chance of survival inevitably mean that retrolental fibroplasia will be commoner.

It has always constituted a diagnostic problem of considerable magnitude. A white reflex in the pupil in an infant always raised the alternative diagnoses of glioma or the congeries of pseudoglioma, which included retrolental fibroplasia. In bilateral cases the diagnosis was so uncertain that the common practice was to excise one eye to establish histologically whether a malignant tumour or a simple lesion was present. Recognition of prematurity as a significant factor in an individualized form of pseudoglioma, if it had led to nothing more, had at any rate drawn attention to the problem of differential diagnosis. With further study a clear clinical picture has emerged, so that it is now generally possible to diagnose retrolental fibroplasia even without a history of premature birth. In the early stages a pale fundus, dilated vessels, and particularly retinal haemorrhages; in the somewhat later stages finger-like processes that can be seen ophthalmoscopically extending from behind the ciliary body; and in the late stages evidence of microphthalmos, are all features in favour of retrolental fibroplasia.

Experimental lesions simulating retrolental fibroplasia have been obtained in the progeny of a rat deprived of vitamin A during pregnancy,[1] but there is no convincing evidence that a particular vitamin or other deficiency in the human mother is a causal factor in

prematurity. Studies in incompatible Rh reactions in the parents have likewise proved negative,[2] and for the present we have no clues. Whatever the causal agent, it seems to exert itself to a variable degree and possibly at different times in antenatal life, and its effect may take a variable time to show. Thus, if it appears early and acts strongly, marked prematurity is the rule, and marked ocular defect may result within a few weeks of birth. With a milder action birth may occur at full term, but some months afterwards retrolental fibroplasia may still develop. It is still a moot point whether substantial damage to tissues other than the eye occurs frequently in these infants. The exact status of the affection described by Krause as "congenital encephalo-ophthalmic dysplasia" is still uncertain, for there is no definite evidence that this more severe disease involving both brain and eye—an example of which is reported on page 450 by Mr. J. Minton and Dr. Pauline Cole—is associated with prematurity.

Congenital total detachment of the retina is now recognized as a recessive sex-linked character.[3] A genetic factor in retrolental fibroplasia is possible, since it tends to affect both infants of uniovular twins, but only one if they are binovular.[4]

INDUSTRIAL MEDICAL SERVICES

A committee appointed by the Prime Minister in 1949 under the chairmanship of his Honour Judge E. T. Dale to inquire into industrial health services[5] concludes that the existing services are most important to industry and that they should be maintained and encouraged to expand "with due regard to the demands of all other health services for medical man-power." It considers that a standing joint advisory committee should be formed with strong medical representation, consisting of representatives of the Ministries of Health, Labour, and Fuel and Power, employers, workers, doctors, and nurses, and that there should be an equivalent committee for Scotland.

The Dale Committee was appointed to examine the relationship between the preventive and curative health services and the industrial health services, and to consider what measures should be taken by the Government and other parties to ensure that medical man-power is used to the best advantage. The committee was asked to report fairly quickly, and it therefore confined its inquiries mainly to first principles. It was impressed by the importance of industrial health services both to the health of the workers and to productivity, and these services are regarded as a normal function of enlightened management; indeed, they are essential to an industrial nation such as Great Britain.

The committee points out that a doctor working in industry must have a sound knowledge of the processes and hazards of the factory or mine. It thought that more male nurses should be employed in industry, and all trained nurses, men and women, should be employed on nursing duties and not on such ancillary work as welfare. It may also be necessary to have untrained staff working under trained nurses. Several witnesses emphasized to the committee the value of a nurse in raising and maintaining the morale of workers. More attention should be paid to first-aid training where nurses are not available, and workers should be encouraged to become proficient in first-aid. Claims for more doctors and nurses can come only from employers at present, who initiate or increase their services at their own expense. The committee thinks this process could be encouraged by legislation designed to increase the employers' legal responsibilities for their workers' health. Any restraint needed should be in the form of advice and not legislation.

All would agree with the committee's conclusion that industrial health services are essential in a highly industrialized country, where many workers daily are exposed to the hazards of minor and major injuries as well as to the deleterious effects of dusts, chemicals, vibration, and noise, to mention only a few risks to health. What is questionable is the committee's recommendation that a composite committee should be set up representing various Ministries and interested parties. In its written evidence to the committee the B.M.A.[6] considered that the ultimate aim should be "a comprehensive service for occupational health closely integrated with the National Health Service and supervised centrally by the Ministry of Health." The B.M.A. pointed out that the present overlapping of services—a problem which particularly exercised the Dale Committee—is confined in the main to treatment services and is not a major difficulty. "The remedy lies in the extension numerically and dispersion geographically of the clinics for specialist treatment provided by the hospital authorities." Industrial health services should closely interpenetrate the services provided by general practitioners in industrial areas, and both general practitioners and hospitals should be given full scope for promoting health at work, which is, in fact, inseparable from health at home.

SIR LIONEL WHITBY

Sir Lionel Whitby, Master of Downing College and regius professor of physic, has been nominated by the Council of the Senate of Cambridge University as vice-chancellor for 1951–2. Sir James Chadwick, who was to have held this high office, has for reasons of health been unable to accept nomination. Sir Lionel Whitby's administrative gifts have been unreservedly put at the disposal of the medical profession. After his year's presidency of the B.M.A. he served on the B.M.A. Council and has done invaluable work as chairman of the Joint Committee. During his vice-chancellorship at Cambridge we shall, unfortunately, be deprived of his services. The medical profession will nevertheless take pride in the fact that one of its distinguished members has been chosen as the first nominee of the Council of the Senate for the second highest office in the second oldest university of this country.

[1] Warkany, J., *Advances in Paediatrics*, 1947, **2**, 1.
[2] Paul, T. O., *Arch. Ophthal., Chicago*, 1949, **41**, 659.
[3] Sorsby, A., Klein, M., Gann, J. H., and Siggins, G., *Brit. J. Ophthal.*, 1951, **35**, 1.
[4] Reese, A. B. Personal communication.
[5] *Report of a Committee of Inquiry on Industrial Health Services*. London: H.M.S.O.
[6] *British Medical Journal Supplement*, 1950, **1**, 18.

REFRESHER COURSE FOR GENERAL PRACTITIONERS

DISEASES OF THE NIPPLE*

BY

Sir CECIL WAKELEY, K.B.E., C.B., M.Ch., D.Sc., P.R.C.S.

Senior Surgeon and Director of Surgical Studies, King's College Hospital and Belgrave Hospital for Children; Consulting Surgeon to the Royal Navy

It is a curious fact that little attention is paid in this country to malformations and diseases of the nipple. There is a tendency to regard a retracted nipple in a young woman as something that will right itself in time.

The nipple is a conical projection of skin enclosing the terminations of the lactiferous ducts, which number 15 to 20. Up to the age of puberty there is little difference between the male and the female nipple. At puberty the female nipple enlarges at the same time as the whole breast increases in size.

Retraction of the Nipple

In some girls at puberty the nipple does not develop with the rest of the breast but remains small and retracted. This state of affairs may persist even during pregnancy. It is important that school medical officers should examine the nipples of girls before they leave school, as it is quite easy to correct this deformity. A depressed nipple can as a rule be drawn out by finger and thumb and held for a minute or so and then relaxed. If this is done regularly night and morning for a week or so a depressed nipple will in most cases assume a normal appearance. When this simple procedure fails some form of suction should be employed. A large warmed test-tube which will fit over the retracted nipple can be used as a cupping tube. The unstoppered mouth of a warm bottle will act in the same way, and in some cases an electric breast-pump can be used with advantage. Once the nipple has been drawn out it can easily be kept erect by gentle traction. This traction should be exerted for a few minutes night and morning. After a few weeks the nipple will retain its proper shape and further traction is not then required. This simple form of treatment will often result in a normal nipple, and if pregnancy ensues breast-feeding will be possible.

In those women who wish to undertake breast-feeding but have suffered from retracted nipples for many years, suction by a cupping tube may not bring about a cure, and an operation will be necessary. Two crescentic flaps of skin are removed from the medial and lateral borders of the skin surrounding the depressed nipple (Fig. 1). The nipple is carefully grasped with fine forceps and drawn out so that it becomes erect. It is held in this position while the raw surfaces of the small crescentic wounds are stitched up. This operation is quite successful even if performed during the early months of pregnancy.

Some cases of retracted nipples are caused by the modern tight brassière, which leaves no room for the nipple; a well-fitting brassière should always leave enough space for the nipple.

*Lecture delivered at King's College Hospital on September 30, 1950.

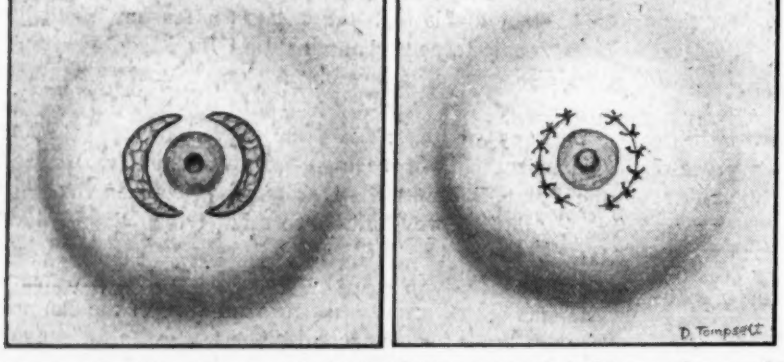


FIG. 1.—Operation for retracted nipple, showing crescentic incisions and removal of skin to outer side of areola.

Cracked Nipples

Although this condition is not so common to-day as it was at the beginning of the century, it is still seen. A cracked nipple is a preventable condition and may be the forerunner of a mammary abscess. With proper antenatal care and attention to the nipples in the later stages of pregnancy there is no excuse for this painful occurrence. During the later months of pregnancy the nipples should be carefully cleaned and anointed with a little glycerin. The whole nipple must be attended to, as cracks may manifest themselves at the apex or the base of the nipple and at times multiple cracks or fissures may appear. Cracks are far more common in partially retracted than in normal fully developed and erectile nipples, and any tendency towards retraction should already have been overcome.

If the crack appears during lactation the breast should be rested for 36 to 48 hours and feeding should be restarted gradually, the baby being put to the breast for only a few minutes at a time. As a rule a cracked nipple can be cured in a day or two. The treatment should be rational, as over-treatment may be as detrimental as no treatment. The nipple should be carefully washed with a solution of sodium hypochlorite (or any other suitable non-irritating antiseptic) and covered with a sterile dressing. Healing will be rapid and complete, and there will be no tendency for an underlying abscess to form. When feeding is begun again a sterilized nipple shield may be found to be advisable and comfortable to the patient.

Bleeding from the Nipple

A discharge of serosanguineous or sanguineous fluid from the nipple is always a sign which requires prompt investigation. Although throughout the ages attention has been drawn to this condition, many and varied have been the explanations of its cause. In the fifth

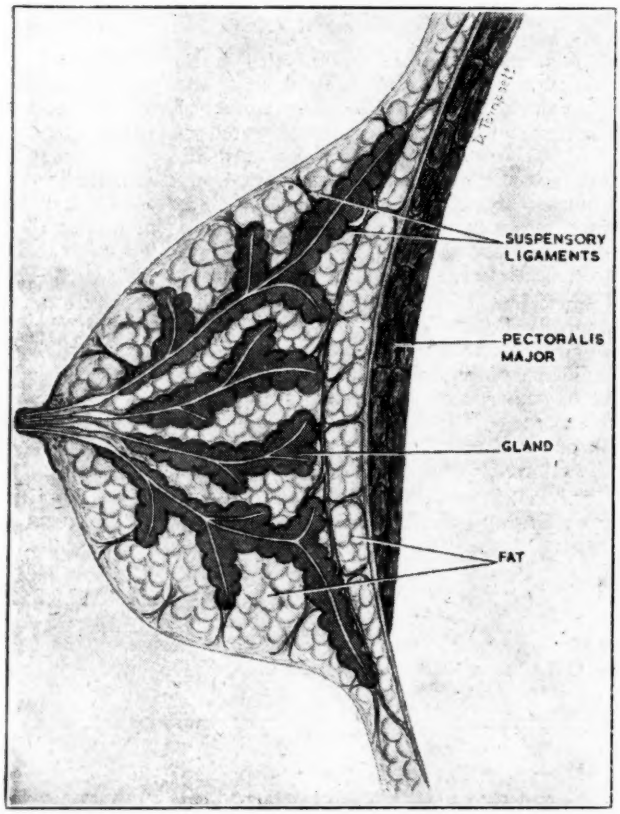


FIG. 2.—Section of breast, showing relation of ducts to nipple.

century B.C. Hippocrates postulated that when blood collects at the breast of a woman it indicates madness. Since that date, as our knowledge of pathology has advanced, we have come to know that bleeding from the nipple may be caused by innocent or malignant tumours of the breast.

It is important to examine the discharge from the affected nipple, as quite often chronic adenosis and cystic mastitis may give rise to a discharge from the nipple which simulates blood but in reality is a brownish inspissated secretion of some dilated ducts. A microscopical examination of the discharge is therefore very important.

Although rare cases of true vicarious menstruation have been reported in the literature, I have never seen a case and I am sceptical of their occurrence.

In this age of mechanical transport injury to the breast is a frequent occurrence and at times haemorrhage from the nipple may be seen, but it always ceases in a day or so and does not reappear.

The two common conditions which are responsible for haemorrhage from the nipple are intracystic duct papilloma and duct carcinoma. Between 1915 and 1950 I have had 88 cases of bleeding from the nipple and in 69 of them the bleeding was due to a duct papilloma. The bleeding may be transient, intermittent, or constant; in the majority it is intermittent. It may be difficult to palpate any abnormality in the breast, and then there is no indication of the part of the breast from which the haemorrhage has originated. In such cases a very good plan is to cover the nipple with some collodion and see the patient again after two or three days. Quite often the blood is dammed back and kept in the dilated duct; if so, an incision can be made over the dilated duct and the intracystic papilloma excised through a radiating incision from the nipple. It is important to use a radiating incision, as only one duct is incised; if a vertical or other incision were made there would be a great danger of injuring several ducts (Fig. 2).

In young women it is essential not to be stampeded into performing a local mastectomy on account of bleeding from the nipple. During the 1939–45 war far too many young women in the Services lost their breasts for innocent conditions. In those cases in which there is a lump that almost disappears on pressure or bleeding from the nipple the diagnosis is a duct papilloma, and excision can be performed through a radiating incision. It is essential that every papilloma should be carefully examined microscopically to confirm the diagnosis. In other cases the bleeding can be seen to come from a dilated duct, which may be probed by a thin metal instrument such as the blunt end of a straight surgical needle, as advocated by Babcock. The end of the needle will pass into the cyst, and on depressing the end of the needle the cyst can be made to stand out under the skin of the breast (Figs. 3 and 4). Excision of the papilloma can then be performed. Transillumination rarely helps in locating a duct papilloma, but it may be of value in cases of duct carcinoma.

The introduction of opaque media into the ducts of the breast, though it may result in spectacular *x*-ray pictures, is of little value and may give rise to retention cysts in the breast; therefore it should not be done.

In several women in whom I have excised intracystic papillomata repeated pregnancies have not caused any pain in the breast and normal breast-feeding has taken place without any local trouble.

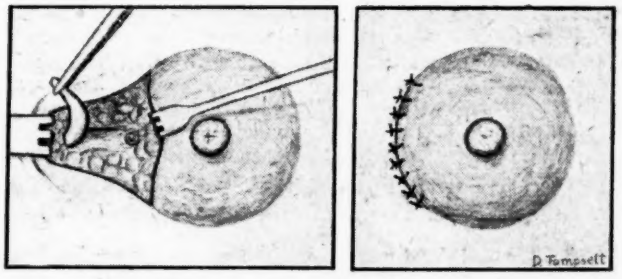


FIG. 3.—Operation for excision of a dilated duct by radiating incision. (After Babcock.)

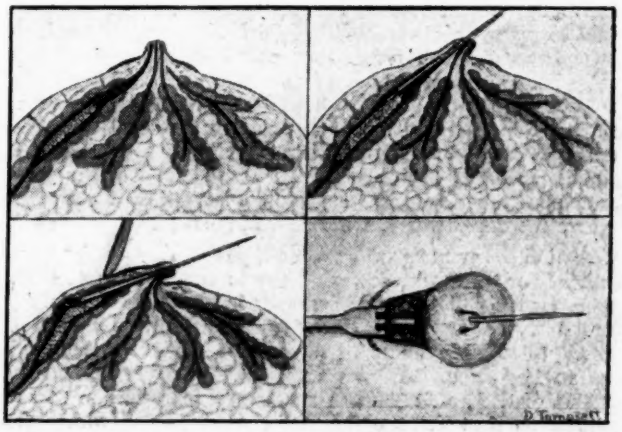


FIG. 4.—Excision of an intracystic papilloma, showing dilated duct brought to the surface by means of a surgical needle. (After Babcock.)

In women over 40 with bleeding from the nipple the probability of a duct carcinoma must be carefully considered. In many a lump will be palpable, and in some cases the axillary glands may also be palpable. In doubtful cases the lump should be excised and examined histologically. If found to be malignant, then a radical mastectomy should be performed.

Malignant Disease of the Nipple (Paget's Disease)

This is a rare condition, and I have seen only seven cases in a series of over 1,000 cases of carcinoma of the breast It occurs in women between the ages of 60 and 70 and begins quite often as a weeping eczema of the nipple, with a blood-stained discharge in the early stages. The nipple becomes retracted and often ulcerated and flattened (Fig. 5). If treatment is not forthcoming nodules may be felt in the breast and the axillary glands may become enlarged. Radical mastectomy should be performed for this disease as soon as the diagnosis is made. Eczema of the nipple in an elderly woman should be treated as a malignant condition and amputation performed.

FIG. 5.—Paget's disease of the nipple in an elderly woman.

FELLOWSHIPS IN CLINICAL MEDICINE

We print here details of the Fellowships in clinical medicine which the Medical Research Council is offering this year.

The Medical Research Council has decided to institute a limited number of Fellowships for medical graduates who wish to prepare themselves for a career in clinical research. The Council is convinced that to-day, more than ever, the successful clinical investigator must possess a sound knowledge of the non-clinical subject which is most relevant to his main clinical interest: the proposed Fellowships have been designed for this purpose. It is intended that each Fellow appointed under the scheme should be given an opportunity to study methods of research in the basic subject most germane to his particular clinical interest as part of his training for clinical research. During the initial period of tenure the Fellow will work in the relevant non-clinical subject, and subsequently in a department where the clinical subject itself is being studied.

A limited number of Fellowships of this type are now offered for the academic year beginning on October 1, 1951. The awards will be made for a period of one year in the first instance, and will be renewable annually in approved cases up to a maximum of three years in all. Stipend will be at the rate of £850 per annum, rising by annual increments of £75 to £1,000 per annum, and in addition superannuation provision will be made (or continued within the National Health Service Scheme, if applicable, by arrangement with the Ministry of Health and the Department of Health for Scotland).

Conditions of Award

Candidates for these Fellowships must be medically qualified and should have had at least one year's clinical experience, part of which should preferably have been spent in a department where clinical research was in progress. Applicants will be invited to submit their own proposals as to type and place of work, but the Council will be glad to advise successful candidates on the selection of suitable centres of study and to assist in placing them in departments or laboratories where the desired training and experience can be obtained.

Applications for these Fellowships, which should be made personally by the candidates, must be sponsored in each case by the head of the appropriate department in the candidate's university or medical school, and an undertaking will be required that a suitable academic post in a clinical department will be available to the candidate in that institution on satisfactory completion of the period of study under the Fellowship.

If a Fellow should discover that his preference is for a career in a non-clinical subject rather than in clinical medicine, the Council will be prepared to consider an application for the remaining period of the Fellowship to be spent in work on this subject.

Forms of application for these Fellowships may be obtained from the secretary, Medical Research Council, 38, Old Queen Street, London, S.W.1, with whom applications must be lodged not later than April 30, 1951.

Preparations and Appliances

MODIFICATION OF THE GORDH INTRAVENOUS NEEDLE

Dr. DONALD BLATCHLEY, anaesthetist, Royal Northern Hospital, Holloway, and Hospital for Women, Soho, writes: There are two drawbacks to the Gordh intravenous needle when in constant use: (*a*) the large bore makes its insertion painful in some cases, and in patients with small veins venepuncture is difficult or impossible; (*b*) the needle point soon becomes blunt, and facilities for resharpening are not always readily accessible.

At a recent meeting of the South-west Region Society of Anaesthetists at the Westminster Hospital an ingenious modification was demonstrated, utilizing an ordinary hypodermic needle of any suitable size. The conversion to a

diaphragm needle was made by using a small rubber cap on the shank of the needle, such a cap being originally designed for covering the ureteric catheter's entry port on a cystoscope. As I have found these caps jealously guarded by theatre sisters for their original purpose and no other, I have devised a simple modification, as illustrated. The diaphragm cap is made from narrow-gauge rubber tubing, ½ to ¾ in. (1.25 to 1.9 cm.) long. One end is slipped over the shank of the needle, the other is closed by a small rubber or cork bung, such as used in phials of citrate solution or for closing the air-entry tube of a standard intravenous resuscitation set. To prevent leakage the fit over the needle shank and that of the cork must be very tight. Also, the smallest possible dead space must be allowed between the needle shank and the cork, and injections be made into this space through the side of the tubing.

Reports of Societies

ANTICOAGULANT PROPERTIES OF DEXTRAN

Dextran is usually regarded as a plasma substitute. Since the first English report appeared in 1949,[1] dextran solution has been issued to hospitals for general clinical trial under the aegis of the Ministry of Health and the Medical Research Council, and its use as a resuscitation fluid is now familiar to many. But dextran has other, more academic, uses, and also other possible clinical uses. At a meeting of the Section of Experimental Medicine of the Royal Society of Medicine on February 13, members of the pathology department of Birmingham University Medical School and of the M.R.C. Burns Unit described experimental work in progress in which advantage has been taken of the facts that dextran is an electrically neutral and metabolically inert substance which can be prepared in a wide range of molecular sizes.

Dr. J. HARDWICKE took a little further the preliminary report already published[2] on the effects of dextrans of various molecular sizes upon the erythrocyte sedimentation rate; it now appeared, as a result of these studies with dextran, that it might be possible to define quantitatively the component of the raised E.S.R. which was attributable to fibrinogen, independently of the albumin and globulin concentrations. He hoped that it would also be possible to do this for any other component of the serum which affected the E.S.R.

Heparin-like Action in Laboratory Animals

Dr. D. BREWER described his preliminary experiments on the renal excretion of dextrans of different average molecular sizes, from which he concluded that dextran was excreted mainly by glomerular filtration and that little if any tubular excretion or reabsorption occurred. Grönwall *et al.*[3] had shown that sulphuric esters of dextran, like similar esters of other polysaccharides with large molecules, possessed a heparin-like anticoagulant action, but concluded that such preparations were too toxic to be of clinical value. The Birmingham workers considered that this problem deserved re-examination because, although Dr. Grönwall and his colleagues had concluded that the toxicity was unrelated to molecular size, the compounds used by the Swedes had been of significantly larger molecular size than heparin itself. Dr. K. WALTON reported that dextran sulphates of a molecular weight range of 20,000 or less, unlike similar compounds of greater molecular weight, did not cause precipitation of fibrinogen, agglutination of platelets, or the deposition of metachromatic staining material in the reticulo-endothelial system, and that animals given these preparations did not exhibit fibrinogenopenia or thrombocytopenia, which were responsible for the previously observed toxic effects of such compounds.

The substance finally selected by Dr. Walton for closer study acted in the presence of a co-factor in serum or plasma, like heparin, as an antithrombin; it had an activity of 17 to 20 international units/mg. when assayed against standard heparin, and had been given without harm in doses up to 500 mg./kg. body weight to mice, rats, rabbits, dogs, and monkeys. A toxic effect was seen, however, in guinea-pigs. The material could be autoclaved in a suitably buffered solution without loss of potency. No evidence had been found of deposition in the tissues. In doses of 40 mg./kg. it caused no alteration of the blood pressure, pulse, or respiration rates in anaesthetized dogs, and it exerted a negligible effect upon E.S.R. and the motility and phagocytic properties of leucocytes. It was not antigenic. It was active when given parenterally, but inactive when administered by mouth. When 5 mg./kg. body weight was given intravenously to a rabbit, the clotting time was immediately prolonged to 20 minutes, and the effect lasted some one and a half hours.

Clinical Trial of Dextran Sulphate

A clinical trial of dextran sulphate was about to be arranged, and the results would be awaited with interest, since anticoagulant substances were now used in a wide variety of conditions. Dextran sulphate had been subjected to most careful scrutiny in the laboratory; it appeared to have no undesirable properties, and had the advantage that, unlike heparin, it could be estimated chemically in the body fluids. Greater accuracy and precision in the control of anticoagulant therapy should thus be possible.

[1] Bull, J. P., Ricketts, C., Squire, J. R., Maycock, W. d'A., Spooner, S. J. L. Mollison, P. L., and Paterson, J. C. S., *Lancet*, 1949, **1**, 134.
[2] Hardwicke, J., Ricketts, C. R., and Squire, J. R., *Nature*, 1950, **166**, 988.
[3] Grönwall, A., Ingelman, B., and Mosimann, H., *Upsala LäkForen. Förh.*, 1945, **50**, 397.

INTERNATIONAL CONTROL OF COMMUNICABLE DISEASE

WORLD HEALTH ORGANIZATION

At a meeting of the Section of Epidemiology and State Medicine of the Royal Society of Medicine on February 16, Dr. Y. BIRAUD, director of the Section of Epidemiology in the World Health Organization, gave an address on the work of W.H.O. in the control of communicable disease. Dr. W. H. BRADLEY was in the chair.

Epidemiological intelligence of international range was essential to the success of any action in this field by national authorities. W.H.O. was created in July, 1946, in New York, and its epidemiological service later in the same year at Geneva. Its information depended on the good will of nations; States which were parties to the conventions sent information by telegram, or in many cases, particularly in the East, by wireless. There were now epidemiological stations at Singapore, Geneva, and Alexandria. Another station was the Pan-American Bureau at Washington, which acted on behalf of W.H.O. Epidemiological information was later confirmed in a series of weekly epidemiological reports issued from the four stations mentioned.

Subsequent action depended on international conventions. One of the early tasks of W.H.O. had been to rejuvenate the old conventions and form corresponding draft regulations. This work had taken four years. An international epidemiology and quarantine committee had consolidated the work of a number of study groups. As a result of these labours a document had now been circulated to the different participating countries, and this would be discussed by their delegations in April at Geneva.

Work of the Expert Committees

The major element in the co-ordination of international research on communicable disease was the expert committee. Originally these had had a relatively fixed membership, chosen on a geographical basis, but at the first World Health Assembly a new pattern had been established. Panels had been formed with an unlimited number of members, so that by choosing those best qualified to deal with a particular problem great flexibility of action was possible. There were expert committees on plague, yellow fever, typhus, bilharzia, leprosy, influenza, poliomyelitis, and infective hepatitis, and committees on cholera and smallpox were being formed. There had been consultation on the communicable diseases of childhood, and there was a committee on insecticides.

International conferences on malaria had been held, and public health, public works, and agricultural authorities had participated in a way that would scarcely have been possible on a strictly national basis. It was in many cases the ideal

method for the international co-ordination of research to have first an expert committee working for two or three years in international institutes and universities, and then to collate the results and make recommendations to an international conference at which the heads of administrations would meet the experts. It had been found that this method contributed most rapidly to the application in practice of what the expert committees had advocated.

Centres for the Study of Influenza, Brucellosis, and Tuberculosis

W.H.O. had set up a chain of influenza centres, each covering one or more countries, and these co-operated with the World Influenza Centre at Mill Hill. A similar chain of centres existed for brucellosis. There was also the International Tuberculosis Research Centre at Copenhagen: there laboratory facilities in different countries available for the provision of B.C.G. were being surveyed. In addition, several million B.C.G. vaccinations had been carried out, chiefly under the aegis of the Scandinavian Red Cross and of Unicef.

Medical Surveys and the Suppression of Epidemics

For over a year a systematic study had been made near Madras in an attempt to find out how cholera epidemics arose. A survey of yellow fever was being started in countries where it was endemic, and a bilharzia survey was being made in East Africa and the Mediterranean region. There was also field work on trachoma in Palestine.

Another aspect of the epidemiological work of W.H.O. took the form of assistance to countries in combating infectious diseases. This included emergency assistance in epidemics and technical advice to Governments on the running of campaigns against a particular disease. Emergency assistance in epidemics had been begun by the League of Nations in 1921 in Eastern Europe. Unrra had covered similar ground, and if it had not had much occasion to deal with major epidemics it had used some of its forces to combat endemic diseases such as malaria in Greece, which war conditions and starvation had considerably intensified.

Active intervention by W.H.O. had taken place several times already. The most spectacular concerned the cholera epidemic in Egypt in 1947. The expert committee on quarantine presided over by Dr. G. P. Stock met within a fortnight of the beginning of the epidemic and advised the health authorities of Egypt and other countries on what measures of protection were practicable. Two million doses of cholera vaccine were provided free, and some seven million further doses were provided on repayment at prices which were only one-third of what normally would have been the case. Less spectacular had been the action undertaken by W.H.O. in the major typhus epidemic in Afghanistan, when a considerable amount of D.D.T. and typhus vaccines had been provided and experts had been sent to the spot. When poliomyelitis broke out in India in 1949 and in Chile a little later. W.H.O. dispatched missions to advise the authorities on effective methods of control.

Finally Dr. Biraud mentioned the assistance given to Government programmes for the control of specific communicable diseases. This had taken the form of international teams of experts to demonstrate modern methods of control. Such international teams were matched locally by medical officers who were trained in the technique, so that, when the international team dissolved, the work could be continued by the local people. Government projects were being assisted by W.H.O. in the field of malaria, tuberculosis, venereal diseases, yaws, trachoma, filariasis, kala-azar, leprosy, rabies, and poliomyelitis; also in diphtheria and whooping-cough vaccination, and typhus and smallpox control. An increasing feature of W.H.O. activity would be to provide technical leadership for governmental and other health organizations; four million dollars had been earmarked for strengthening the health organizations of various countries in this way.

Correspondence

Diseases of Maladaptation

SIR,—Polemic letters to the editor rarely further the cause of medical research by the information they contain—rather they tend to hinder it, by introducing an element of tension into the scientific journals. It is for this reason that I refrained from responding to previous letters which in these columns criticized the concept of the general-adaptation syndrome with some animosity and little, if any, reference to facts. Your leading article (February 10, p. 285) on the "diseases of maladaptation," however, represents a factual analysis of my work, and hence I should like to use this means to comment on a few points which I fear may confuse those among your readers who are not particularly familiar with this field.

(1) You state that "Professor Selye has given up the use of formalin in these experiments, and therefore it probably did not turn out to be the experimental weapon he was in need of." Actually the local injection of formalin into the joint region proved to be a very useful tool for the production of an experimental arthritis, which—like the rheumatoid arthritis of man—responds favourably to A.C.T.H. and cortisone. It has been used in several laboratories as a reliable simple test for anti-arthritic activity. Now we generally use a 10% suspension of mustard powder since it tends to give more uniform results, but formalin and many other local irritants can also be employed for the same purpose.

(2) You state that after reading my article (February 10, p. 263) "the suspicion is strengthened that somatotrophic hormone may be a non-specific irritant or antigen" and cause cardiovascular and renal lesions through some allergic phenomenon. Since pure crystalline mineralo-corticoids—e.g., desoxycorticosterone, desoxocortisone—elicit similar lesions, you feel that "it is difficult to avoid the conclusion that these substances have a common factor determining ability to induce the lesions, and that this common factor is likely to be the ability of the injected substance to evoke some form of allergic reaction." I feel this view difficult to reconcile with the fact that among all the steroids only those with mineralo-corticoid activity exert such actions, while among the many proteins tested only pituitary extracts with somatotrophic hormone (S.T.H.) activity elicit comparable changes under our experimental conditions. Furthermore, even if we limit our considerations to cattle pituitary proteins we find that A.C.T.H. inhibits while S.T.H. enhances the development of these collagen lesions. I mentioned in my article that adrenalectomy prevents this detrimental effect of S.T.H.-containing pituitary extracts. This likewise speaks against their allergic nature, since adrenalectomy generally sensitizes the rat to allergic responses. It is also known that NaCl supplements and unilateral nephrectomy selectively sensitizes the organism to the above-mentioned actions of mineralo-corticoids and of S.T.H.-containing pituitary extracts. Neither of these factors influences the course of allergic reactions (Selye: *Stress*, Acta Inc. Med. Publ. Montreal, 1950).

(3) You expressed the suspicion that the production by S.T.H. of a granuloma at the site of injection might merely be due to local irritation. I made only cursory reference to these experiments in my discussion, indicating that they are unpublished and will be reported in full later. However, since you raise this point, let me say that, of course, control experiments have been performed with other proteins (egg albumen, hypertensinogen, etc.), and these gave negative results. Besides, the histological structure of the S.T.H. granuloma is quite different from that of allergic reactions or those produced by formalin and mustard powder.

(4) Finally, you point out that, "although the mode of action of cortisone is not yet understood, it is surely not yet

justifiable to conclude, as does Selye, that it acts solely by depressing A.C.T.H. secretion by the pituitary." I certainly made no such statement. In fact I would consider this interpretation as very unlikely, since A.C.T.H. duplicates most of the important actions of cortisone.

I hope that most of your readers will realize that the general-adaptation syndrome is far too complex a subject to be discussed adequately in a letter. That is why I subjected myself to the rather exhausting stress of writing a thousand-page monograph on *Stress*. However, I thought it might help your readers if I clarified my position, at least concerning the points specifically raised by your leading article.—I am, etc.,

University of Montreal,
Montreal Canada. HANS SELYE.

*** As regards Professor Selye's fourth point, the sentence in his paper which might have given rise to confusion reads as follows: "They also demonstrate that, under suitable experimental conditions, the simultaneous administration of cortisone inhibits these effects of S.T.H., presumably because it depresses A.C.T.H. secretion by the animal's own pituitary."—ED., *B.M.J.*

Oxford Hesitates

SIR,—In your annotation (February 17, p. 349) Oxford was accused of hesitation about filling the Chair of Social Medicine, and was admonished "to use the money for the purpose for which it was set aside." The money referred to is presumably the remainder of the ten-year grant from the Nuffield Provincial Hospitals Trust, of which there are less than two years to run. It does not seem to be realized that after October, 1952, the University will have no means of supporting the Chair or the Institute of Social Medicine, which is the Professor's "laboratory," unless adequate funds are provided by the University Grants Committee. Application for sufficient money for the next quinquennium will be made, and it is greatly hoped that sufficient will be provided. But we are sure to be given a single block-grant to cover the whole range of medical education and research without any specification of items; and we have no reason to believe that we shall get all we ask for. If we get considerably less, we shall have to consider priorities, and it might well be that one or more of our less vital and more recent developments might have to be drastically cut or even abandoned. At one time it seemed a simple escape from this quandary to ask for an earmarked grant specifically for Social Medicine; but we have been advised that the policy of the University Grants Committee has set strongly against the multiplication of earmarked grants; and, moreover, to ask for this one would falsely imply that Social Medicine is of such unique importance to us that we must secure it whatever happens to other subjects. In fact, there are certain other projects that we feel must have first priority, and until these are secured we cannot predict whether there will be £8,000 to £10,000 a year available for Social Medicine. The "lead given by Oxford" will not be abandoned unless the choice should lie between this and something still more important. The system of quinquennial applications and grants, with the possibility of reductions, forces universities to be cautious in their commitments. As soon as we receive the cloth we shall know how to cut our coat. Meanwhile, it is manifestly impossible to fill the Chair while the wherewithal for the Professor's work depends on the size of the next quinquennial grant. This is not hesitation, but prudence.—I am, etc.,

Oxford. A. D. GARDNER.

Insomnia in General Practice

SIR,—While it is useful for the G.P. to know the latest ideas of psychologists on insomnia, the reading of Dr. E. B. Strauss's article (February 17, p. 350) left me with the depressing feeling that there is indeed a great gulf fixed between hospital and general practice, and that it is getting wider. We have to consider, for example, such practical matters as that barbiturates in solution usually deteriorate rapidly, so such solutions must be ordered much more frequently than tablets, which would not only overcrowd our surgeries and our day but mean greatly increased dispensing costs. Cachets would put these up still more. Furthermore, while Dr. Strauss rightly looks on each case of insomnia as a personal problem, the experienced G.P. knows that it is also a social and an economic problem. If a wife—and still more a child—is sleepless, the man or perhaps the whole family is also kept awake, fretfulness and inefficiency increase, and any actual illness is aggravated.

Thus, while insomnia is truly only "a symptom" it is an integral part of a much wider problem, the use of sedatives in medicine. Here there is one generalization that is broadly true, that sedatives are much too little used in hospitals (where, admittedly, the problem is often to study the patient as he is rather than to get him better) and outside hospital they are perhaps used too much. Yet I must confess that, while I started my medical career with the belief that most patients required stimulation to get them back to health and activity, I have come to agree with my father's dictum after his fifty years' experience that "sedatives are more useful." In fact, one of the scientific troubles of general practice is that if one gives a case which looks as if it might be developing some real illness a good hypnotic to ensure a good night's sleep, together with an analgesic if necessary, the next day the patient is sometimes so well that one is deprived of the possibility and pleasure of making any diagnosis at all. Nature can make remarkable recoveries so long as the subject is prevented from dissipating his recuperative powers in restlessness and insomnia. This is particularly true of children, and there are few childish illnesses which cannot be shortened and made more bearable by giving a sedative with the other treatment. For this I think much the best is syrup of chloral. It conserves the patient's strength and relieves the severe strain on the mother and the rest of the household.

I think it was worthy of mention that a common cause of sleeplessness is nocturnal micturition. This may, of course, be caused by cold, imbibition, or enlarged prostate, but a more recondite and perhaps more important cause is that it may be the earliest sign of heart failure. It is, in essence, the voiding at night of a subclinical diurnal anasarca, and regulation of exercise and small doses of digitalis will cure it, while all hypnotics fail. It is hardly too much to say that in an ambulatory patient if his kidneys excrete properly during the day and shut up at night he is living well within his cardiac tolerance whatever stethoscopes, sphygmomanometers, and electrocardiographs may say. This simple and delicate mechanism of nature should be much more widely appreciated than it is.

Dr. Strauss mentions that being too hot or too cold will prevent sleep, but in the case of cold, apart from the diuresis mentioned above, it is more coldness of the feet than general coldness that is the trouble. A hot-water bottle to the feet is often the best hypnotic, and for the overactive mind a warm bed may induce sleep, while getting into cold sheets may so stimulate it that insomnia ensues. When "testoviron" was introduced it was stated in Schering's literature on the subject that it would frequently relieve the insomnia which is common in men in their fifties. I believe that this is true, and that the explanation is that it improves the circulation in the legs, thus reducing the liability to cold feet that prevents sleep. Certainly the female hormones play tricks with the circulation, and I personally would have liked Dr. Strauss or someone else to have said more on the relation between sleep and age (and presumably hormones) than simply that older people need less sleep than younger. But perhaps this would require a whole article to itself, as also might the factor of heredity. The trouble is that we G.P.s just get hazy slants on these problems. We seldom see enough to be sure that our ideas are correct, while our teachers in hospital seldom get near enough to the patient to be aware that some of our problems exist at all.

So I hope that Dr. Strauss and others will not think that I am criticizing his article for deficiencies, even though I mention them. I am really pleading that there should be much more co-operation between hospital and general practice, with a willingness to learn each from the other. And in conclusion I would like to suggest that though, as Dr. Strauss says, "there are innumerable proprietary preparations of barbiturates, and all of them have their advocates," their advocates should not be (and in general practice usually are not) doctors but patients. Admittedly soluble barbitone suits the majority, but with some soluble phenobarbitone works very much better, and in nothing are patients more individual than in their reaction to barbiturates. He may find in hospital it is possible and "useful to be able to vary hypnotic drugs at frequent intervals," but in general practice few things would exasperate patients more, for once you have got your patient suited with a particular hypnotic—and it may take months of experiment to find the right one—it is more than interesting to find how many other vague or even definite symptoms disappear, and every G.P. of experience will assent to at least one sentence of Holy Writ—"If he sleep, he shall do well."—I am, etc.,

Winsford, Cheshire. W. N. LEAK.

Tonsils and Angiomata

SIR,—On the subject of tonsils and adenoids: It is curious that in the discussion (February 17, p. 353) on indications for their removal no one has mentioned the common and important infection with tuberculosis. This is the rule when there is tubercle of the cervical lymph glands, and it is frequent in pulmonary tuberculosis in children. As the tubercular tonsil is usually small, pale, and innocent-looking, specialist opinion is almost invariably against its removal.

No discussion of the tonsil and adenoid problem is complete without mentioning that at present about a third of the operations for their removal fail in their object.[1] The reason is the persistence of a false anatomical description and an operative technique that would be tolerated in no other branch of surgery.[2] The younger the child the greater the inefficiency, which in my opinion accounts for the prejudice against the operation in very early life. I think that, as in appendicitis, the indications and results are much the same at any age, given clean removal.

On the subject of angiomata: The advice so constantly given by dermatologists, and repeated by Dr. C. M. Ross (February 17, p. 356), that these should be left alone results in a certain number of unnecessary and devastating disfigurements. There are some seven different types of these growths,[3] and the dangerous one is what I call the "spreading angioma of infancy." It appears as a small red spot at birth or in the first month of life, very often on the face, and grows with great rapidity, destroying large areas of skin and leaving, when it regresses (as it usually does), a scarred area with a mass of fibrous tissue underneath. One can read many articles on angiomata without realizing that a growth that starts the size of a pin's head may ruin the entire side of a face. Possibly the reason for this is that the bad cases leave the skin department and end up as problems for plastic surgeons, as any of the latter can testify.

I have found the best method of checking growth to be injection with saturated salt solution. Although I have taught for many years that a growing red spot on a baby's face is a surgical emergency, I have never yet known one of these to be sent for treatment until it is a marked disfigurement.—I am, etc.,

London, W.1. DENIS BROWNE.

REFERENCES

1 Illingworth, R. S. (1950). *Proc. roy. Soc. Med.*, **43**, 317.
2 Pye's *Surgical Handicraft* (1950). Edited by Bailey, H., p. 462. John Wright, Bristol.
3 Garrod, A. E., Batten, F. E., and Thursfield, H. (1949). *Diseases of Children*, **2**, 29. Edited by Paterson, D., and Moncrieff, A. Arnold, London.

Sulphonamides in Tonsillitis

SIR,—In the very interesting articles on this subject (February 17, pp. 323 and 326) I feel that part of the answer to their failure is revealed. The "failure" of "sulphatriad" etc., lay in assuming that the streptococcus *per se* caused the whole clinical picture in the cases in which it was a predominant organism on culture. It appears to me reasonable to assume that if in half the cases of sore throat it was not present then possibly in half those in which it was present (predominantly) it had the co-operation of the other causal organism (or organisms), which of course were not influenced by the sulphonamides. This assumption greatly changes statistical analyses. My past practice, which I believe fairly general, is to reserve the sulphonamide drugs for the more severe cases of tonsillitis, in which I use it while taking a throat swab for control. There appears to be no advantage in treating with the antibiotics or sulphonamides the mild sore throats of which only a small percentage come to our notice anyway. Moreover, I have recently received a salutary warning on the use of penicillin chewing-gum, which cured a severe streptococcal sore throat but a fortnight later produced a penicillin-resistant otitis media.—I am, etc.,

Camborne. S. W. VIVIAN DAVIES.

Tonsillectomy

SIR,—I have read with great interest the observations of Dr. Douglas Gairdner (February 3, p. 245) and his supporters regarding cases of tonsil and adenoid disease, and through your columns would like to ask them to enlarge on a few points.

When they speak of conservative treatment do they mean merely the withholding of operation or have they an efficacious alternative to offer? If the latter, what sort of demand would it make upon medical manpower compared to the present system?

Does Dr. Gairdner find that the parents and family doctor accept his assurance—that if all goes well a natural cure will probably occur in three or four years' time—as a satisfactory solution to the problem of a child with tonsil and adenoid disease?—I am, etc.,

Cambridge. KENNETH WILSDON.

Orf

SIR,—A slight experience of orf (see *Journal*, February 17, p. 356) came my way in 1947. It was lambing-time among the mountain sheep. Three patients, all actively associated with sheep-farming, consulted me about "infected warts" upon their hands. The first was a farmer's wife, who was nursing a motherless lamb upon the kitchen hearth. The condition grew worse under my treatment, until I referred my patient to Dr. F. S. Cliff, dermatologist at the Royal Infirmary, Lancaster, who promptly diagnosed "orf."

The later patients were successfully diagnosed and treated on his methods by myself.—I am, etc.,

Sedbergh, Yorks. HENRY THISTLETHWAITE.

Iodine and Goitre

SIR,—Section 28 of the National Health Service Act gives scope to local health authorities to undertake investigations into the epidemiology of disease and to carry out research into any problems arising in the sphere of social and preventive medicine. It is clearly an advantage if work of this nature can be carried out in co-operation with a university department, and in Dorset a special study has been made into the incidence of thyroid enlargement and goitre as part of a wider investigation initiated by the Institute of Social Medicine at Oxford. The results point to the wisdom of the Medical Research Council's recommendation that iodine should be added to domestic salt.[1]

The Table below shows a surprising increase in thyroid enlargement among women attending the Dorchester antenatal

clinic in 1949 compared with earlier years. During the years 1945–8 inclusive, the incidence of thyroid enlargement among the 1,237 women who attended the clinic did not differ significantly from the mean rate of 5.6%. The rate for 1944, 15.7%, is significantly different from the mean of 1945–8 (the usual statistical test giving $\chi^2 = 23.6$—i.e., P is less than 0.001%).

	1945	1946	1947	1948	1949
Total women examined ..	283	332	304	318	178
Percentage with enlarged thyroid	6·36	3·9	7·23	5·03	15·73

In view of these findings, the condition of the thyroid gland in Dorchester schoolgirls in 1949 was compared with that found among girls in the same school in 1945. The results were:

1945: Girls examined, 151. Mean rate of thyroid enlargement, 24%.
1949: „ „ 227. „ „ „ „ „ 18%.

These two rates do not differ significantly from their mean —20.4%. All these examinations of the thyroid gland in both pregnant women and schoolgirls were made by the same observer, Dr. Leonora Evans, assistant county medical officer, who acquired the method[1] from the late Professor J. A. Ryle.

From clinical observations on the women attending the Dorchester antenatal clinic there was a suggestion that their general health had deteriorated in 1949; this was evidenced by increased complaints of lassitude and increased incidence of anaemia and catarrhal conditions compared with the findings in the earlier years. For Dorchester families the chief sources of iodine are the drinking water and sea fish. During the period under review there has been no change in the sources of the domestic water supply. It is a hard water (23 degrees) with an iodine content of 3.1 mg./litre—a level which in the past would not have been considered goitrous,[2] yet there was obviously suboptimal iodine absorption. It may be that diminishing consumption of fish—partly owing to cost and partly to the greater variety of other foodstuffs which have become available since 1947—is the cause of the increased incidence of thyroid enlargement among pregnant women in 1949. The fact that no such increase was noted in Dorchester schoolgirls having school dinners of good quality —including adequate supplies of fish—tends to confirm the hypothesis.—I am, etc.,

A. A. LISNEY,
County Medical Officer of Health, Dorset.

Dorchester.

REFERENCES

[1] Murray, M. M., Ryle, J. A., Simpson, B. W., and Wilson, D. C., *Thyroid Enlargement and Other Changes Related to the Mineral Content of Drinking Water*, Medical Research Council Memorandum No. 18, 1948. London: H.M.S.O. See also leading article in the *British Medical Journal*, 1950, 1, 654.

[2] McClendon, J. F., and Williams, A., *J. Amer. med. Ass.*, 1923, **80**, 600.

Obesity and Thyroid

SIR,—Dr. A. H. Douthwaite's witty and constructive article (February 10, p. 291) in your Refresher Course contains a warning which should not go unheeded. The reaction to thyroid medication to which he refers can indeed be alarming. I recall a small lean man, with a dry shrivelled face which resembled a withered apple, who responded to ¼ gr. (30 mg.) of thyroid extract with violent palpitation, sweating, and a determination "never to take the stuff again." This and similar experiences have led me to believe that the more the patient lacks the thyroid secretion the smaller should be the initial dose.

At the opposite pole is the stout party who takes thyroid because she believes it will reduce her weight without interfering with the pleasure she derives from the table. Some years ago a middle-aged woman of 15 st. (95.2 kg.), who had been recommended by a friend to take this extract, entered a chemist's shop and asked the assistant if he "kept thyroid," much as she would have inquired from her fishmonger if the Scotch salmon was "in." On being assured that he did, she bought some and proceeded to help herself to 25 gr. (1.6 g.) a day. When I saw her some weeks later her only complaint was shortness of breath: her only abnormal physical sign slight tachycardia.

As Dr. Douthwaite points out, it is the individual who seems most in need of thyroid extract who should be given minimal doses, which may be gradually increased under strict observation.

Another point in this informative paper is the relation of exercise to the reduction of weight. Professor E. C. Dodds has told us that the maximum output of energy is at a rate of 600 calories an hour, and this only for short periods. Sir Adolphe Abrahams has reckoned that, taking a pound of fat as a standard of calculation, the exercise needed for its combustion would be a walk of 70 miles at a reasonably sustained rate of 3½ miles an hour. As 300 calories is equivalent to two slices of bread-and-butter, to reduce weight by exercise without dieting would indeed prove to be a thankless task: only the most determined person would set out on a 70-mile walk to rid himself of a pound of fat.

It is a curious fact, but an established one, that some people lose weight merely by resting. Is this because fatigue has lowered rather than raised the metabolic rate in some cases of obesity?—I am, etc.,

London, W.1. I. GEIKIE-COBB.

Exchange Transfusion Methods

SIR,—Exchange transfusion in the newborn must now have been carried out by a considerable number of people whose experience with regard to details of technique might profitably be shared through correspondence in the *Journal*. I am surprised, therefore, that such discussion has not yet been stimulated by Dr. C. B. V. Walker's description (December 23, 1950, p. 1441) of the "Cambridge" outfit.

The operation can, of course, be performed with different types of apparatus and through a variety of blood vessels. Personal preference will no doubt continue to influence the details of equipment and even the choice of route. The routes most often selected are those of Diamond (1948), by the umbilical vein, and of Arnold and Alford (1948), by the femoral vein. Dr. Walker has contributed another interesting outfit, but I feel that it cannot be the most convenient one and that in some particulars he has been over-critical of previous apparatus. When two three-way stopcocks in series are employed, delays may well be caused by the joints becoming dislodged. Such inconvenience is avoided, however, by the use of the four-way stopcock illustrated by Farquhar and Lewis (1949). This stopcock must surely be easier to manipulate, and less liable to lead to confusion, than the haemostats of the Cambridge procedure. During repeated use in Aberdeen, no difficulty has been found in cleansing it. (In the instrument trade, at least in Scotland, the four-way connexion is known as a "three-way stopcock, Record fitting." The other "three-way" device is referred to as a "stopcock with one side-arm.")

The inclusion of a tapered cannula is justified, although the combination of an 18-gauge needle with tubing of 1 mm. bore has been satisfactory in practice. With a 19-gauge needle (Mollison *et al.*, 1948) it is possible that the leakage referred to may occur.

Dr. Walker describes the insertion of an empty and unattached polythene tube into the umbilical vein. Since a death from air-embolism in similar circumstances has been reported (van Loghem *et al.*, 1949) it might be wiser to connect the tube to the apparatus, and fill it with saline solution, before introducing it. In general, the possibility of air-embolism has only to be remembered for this danger to be avoided.

The equipment used in Aberdeen is similar to that of Farquhar and Lewis, but simpler. The burette-stand is omitted. Thin rubber tubing fits firmly over the lateral nozzles of the four-way stopcock, the central nozzle carrying the needle and polythene tube. Since clotting will occur in the tube leading to waste, this is short and spare tubing is provided. Three 20-ml. Record syringes with metal plungers are available, for use in rotation. Heparin is not found necessary at any stage. Instead of periodical rinsing of the apparatus with heparin-saline solution, a syringe is simply changed, washed, and resterilized, whenever friction due to fibrin formation demands. This friction makes the use of all-glass syringes laborious.

Intravenous injection of heparin into the newborn baby is of course unnecessary when the umbilical and femoral routes are used. Most writers regard it as potentially dangerous. Diamond (1948) in particular records that "massive haemorrhage has been

found in a few cases of heparinization of a newborn infant." Wiener and Wexler (1949), however, regard heparinization as a safe and essential step in their method of exchange transfusion by the radial artery and saphenous vein ; without it, free bleeding cannot be obtained from the open cut in the artery. On the other hand, Wallerstein (1948) finds that when a cannula is inserted into the radial artery heparin is not needed. He recommends that the artery should first be occluded, to verify the presence of adequate collateral circulation. Since both the umbilical and femoral routes are subject to occasional technical failures, and since Brancato (1950) states that no such failure has occurred in 66 transfusions known by him to have been performed by the method of Wiener and Wexler, it would be interesting to hear whether any team in this country has used the radial artery procedure.

The volume of blood introduced is commonly greater by 50 ml. or more than that extracted. This excess, even when given by instalments, involves some danger to very anaemic babies. Potter's (1947) warning applies to exchange as well as to simple transfusion: "Anoxia of the myocardium, which usually exists in the presence of severe anaemia, lowers the cardiac reserve and makes overloading of the circulation dangerous. There seems little doubt that some infants die of cardiac failure caused by the sudden introduction of excessive amounts of blood." Mustard and Fraser (1948) have recorded an infant's death from cardiac failure after exchange transfusion, and in Aberdeen the loss of one baby (cord haemoglobin 35%) is attributed to an excessive "bonus." When anaemia is severe, therefore, it may be wiser to exchange equal volumes of blood, returning later to give either a simple transfusion or a second exchange transfusion. Diamond *et al* (1951) have recently summarized their experience, and Allen *et al.* (1950) have discussed repeated exchange transfusion.—I am, etc.,

Aberdeen. M. S. FRASER.

REFERENCES

Allen, F. H., jun., Diamond, L. K., and Vaughan, V. C., III (1950). *Amer. J. Dis. Child.*, **80**, 779.
Arnold, D. P., and Alford, K. M. (1948). *J. Pediat.*, **32**, 113.
Brancato, G. J. (1950). *Amer. J. Dis. Child.*, **80**, 1.
Diamond, L. K. (1948). *Pediatrics*, **2**, 520.
—— Allen, F. H., jun., and Thomas, W. O., jun. (1951). *New Engl. J. Med.*, **244**, 39.
Farquhar, J. W., and Lewis, I. C. (1949). *Lancet*, **1**, 953.
Mollison, P. L., Mourant, A. E., and Race, R. R. (1948). *Med. Mem. Med. Res. Coun., Lond., No.* 19, p. 43. London: H.M.S.O.
Mustard, W. T., and Fraser, J. (1948). *Canad. med. Ass. J.*, **59**, 378.
Potter, E. L. (1947). *Rh*, p. 213. Chicago.
van Loghem, J. J., van Bolhuis, J. H., Soeters, J. M., and Veeneklaas, G. M. H. (1949). *British Medical Journal*, **2**, 49.
Wallerstein, H. (1948). *Blood*, Special Issue, **2**, 170.
Wiener, A. S., and Wexler, I. B. (1949). *Blood*, **4**, 1.

Smallpox

SIR,—The annotation (February 10, p. 288) contains the statement: ". . . An unvaccinated medical officer contracted smallpox after visiting the ship in which the 1942 [Glasgow] outbreak originated." However, the man concerned was well vaccinated in infancy ; his arm showed two large scars, each about florin size. He was revaccinated on exposure by a colleague ; the vaccination was properly performed but the result was negative. He was again revaccinated later ; a positive reaction ensued which aborted early in the attack, since vaccination had been delayed too long to be effectual.—I am, etc.,

Glasgow. J. S. GEMMILL.

SIR,—In the annotation of February 10 (p. 288) reference is made to three outbreaks in Britain in recent years of smallpox started by infected people entering the country from abroad.

I should like to point out that the outbreak of smallpox in Staffordshire in 1947 which I recorded (*British Medical Journal*, 1948, **1**, 139) also originated in a modified vaccinated patient who had flown home from India. In this case a diagnosis of chicken-pox was made as in the Glasgow outbreak of 1950. Of the 30 cases in the area six were fatal. None of these cases occurred in staff, but a medical student who had visited the smallpox hospital subsequently developed smallpox in Birmingham.—I am, etc.,

Wolverhampton. C. SIMPSON SMITH.

The White Man's Disease

SIR,—I have just returned from "another death" from pulmonary tuberculosis. No words of mine can describe the pathos of the remaining members of that family. It was heart-rending to watch. For some considerable time now articles have appeared in the press and numerous discussions have taken place regarding tuberculosis—in particular, the pulmonary type. In spite of the many and varied suggestions made to tackle this problem, it is quite obvious to me that there is not the remotest possibility of the course of this scourge being beneficially affected.

How housing and fresh air can solve or even diminish to any appreciable extent the ultimate course of this disease is beyond my comprehension. As one who has practised for a considerable number of years in a completely new housing scheme I feel that I am in a position to voice my opinion and make some concrete suggestions which I am sure would ultimately bring success in the fight against the "White Man's Disease."

Rehousing a family with one or more members suffering from tuberculosis, from their old home consisting of, say, one or two rooms to a new home consisting of several rooms, merely means transferring the disease from one district to another. Surely the powers that be are not naive enough to think in all honesty that larger homes and fresh air alone will materially affect this illness ? Most of these rehoused families, who are decent hard-working members of the community, barely had enough furniture for their small homes and now find themselves in a bigger home, without the means to buy extra beds, let alone the costly luxury of furnishing the home, with the result that one or two rooms are left more or less unfurnished and in some cases not even lived in. In fact, because of the increased rentals, daily travelling expenses, and high cost of living, etc., many of these rehoused families through no fault of their own are forced to sublet one or two rooms or have married members of their family and their children live with them to help meet the extra expenses incurred in maintaining the new home. Then the end-result is obvious—more overcrowding and more people directly exposed to infection. In other words, we are creating a vicious circle.

How, then, must we face this problem ? There must be no half measures. Nothing short of a full-scale counter-offensive must be launched. First, there must be complete segregation and appropriate treatment of those who are already infected, and this obviously means a comprehensive building programme of sanatoria throughout the country. Please, no outcry about shortage of money, man-power, and material. We find it for war and the destruction that goes with it, yet when it comes to the health and well-being of the nation every obstacle is put in the way. In the meantime full advantage must be taken of the sanatoria accommodation in Switzerland and other countries for selected cases. Nurses, staff, etc., must and can be found.

Secondly, there must be immunization of every member of a family where a case of tuberculosis exists in the first instance, followed by mass immunization of the whole country. If necessary Parliament should be made to act and pass a law making this compulsory as they did for vaccination against smallpox. (This law unfortunately has now been rescinded.) I know that many voices will be raised against compulsion ; was it not the same with vaccination ? But we must not allow ourselves to be deterred by such unworthy opposition. What with the prohibitive price of clothing, diminished food ration, and the high cost of living in general, the people of this country are now more than ever exposed to the terrible dangers of this disease. Unless the Government and other appropriate authorities make up their minds to intervene and do something quickly and with determination on the lines that I have suggested, the outlook in this country so far as pulmonary tuberculosis is concerned is grave.—I am, etc.,

Glasgow. ARNOLD B. COWAN.

The South African Meeting

SIR,—We are gravely disturbed by the news that the British Medical Association has cancelled its plans for a joint meeting this year with the South African Medical Association in Johannesburg and Capetown for the reason that non-European members of the Association may not be welcomed and might even find it difficult to enter that part of the Commonwealth. Such differentiation is, of course, an affront to the ideals of freedom that we cherish in Great Britain.

But when we talk of freedom we should remember that the racial problems of this country were solved nearly a thousand years ago, and that they were never of the magnitude and complexity of the problems now confronting South Africa, of which so few in Great Britain have any real knowledge. I am not suggesting that the actions of the Malan Government should be approved—far from it; but I do suggest that they should be understood; and they cannot be understood easily by sitting in London theorizing. That is why the British Medical Association's decision to cancel an official visit, correct though it no doubt was, is unfortunate. But the misfortune can still be minimized if every physician and surgeon who had planned to go to South Africa will still go in unofficial capacity. They will most certainly receive a warm welcome in Pretoria as well as in Johannesburg and Capetown, and they will come home with an understanding they never had before. They should also go to Southern Rhodesia, and to our own African Colonies, to see different aspects of the same problem.—I am, etc.,

London, W.1. REGINALD WATSON-JONES.

Spens Awards for Professors

SIR,—Your leading article of February 24 (page 400) discusses fundamental matters of medical education upon which its development in the future depends. We entirely agree with you that "the desirability of maintaining the proper social and economic status of specialist practice and its power to attract a suitable type of recruit, having regard to other forms of medical practice," is the crux of the disquiet among the professors of clinical subjects, pathology, and "so on." Speaking on behalf of the professors of non-clinical subjects in the universities, we would point out that the financial differentiation between the clinical and non-clinical departments has been such that the recruitment of medically qualified persons to the latter has been gravely impaired. (In 1947–8 40% of posts advertised were unfilled, and for a further 30% there was only one applicant.) The matter has to some extent been improved by the new salary scales. Nevertheless, the position remains that, while it is accepted that a differentiation—such as the 10% difference at professional grades—should be maintained on grounds of clinical responsibility, it is not in the best interests of the profession or of medical education that a new recruit should be offered, on completing his house appointment and registrarship, a post of £900 in a clinical department, or a post of £600 in a non-clinical department (despite often possessing an honours degree or Part II Tripos in that subject, in addition to being medically qualified). Then we may compare the chance of earning £5,000 per annum in the clinical subjects with the maximum reward of £2,500 per annum in the non-clinical subjects. Such a governmental financial directive is bringing us to the position that we will obtain in our non-clinical departments a disproportionate deficiency of medically qualified staff. This condition is already being reached in the United States, where a similar financial directive exists arising out of a different train of events.

The desirable state is one in which the recruit casts his future in that branch of medicine in which his natural bent and gifts take him, unfettered by financial and social disparities that will be visited upon not only himself but his wife and children.

You have rightly asked, Should a man or woman be penalized because he or she wants to pursue an academic career within the framework of the National Health Service? Since, as you also point out, the principle is granted that professors in medical subjects should receive distinction awards, then there is every reason on grounds of recruitment why this should apply to all professors and their staffs in the faculties of medicine, since in both cases the source of the payment is the Treasury on behalf of the Government.

Perhaps it is worth noting here three points. The first is that distinguished medical men do exist in non-clinical departments, who have contributed advances in medicine in their lifetime, whose discoveries our clinical colleagues are proud to utilize therapeutically, in addition to those clinical professors whose basic work in the laboratory has been applied to their patients. Secondly, it is worthy of note that the principle advocated in this letter has been agreed in Northern Ireland, where the salaries of the whole-time staff, clinical and non-clinical, are to be paid approximately fifty-fifty by the Queen's University of Belfast and the Northern Ireland Hospitals Authority. In addition, such individuals will be eligible for grading as consultant by reason of their experience, distinction, and eminence, with the additional remuneration accruing thereto; and, finally, they will be eligible for distinction awards. This is exemplified in the "Conditions of Appointment" for the current vacancies in the Lectureships in Anatomy and Dental Physiology and Chair of Medicine at Belfast. Lastly, we may note that the Ministry of Health has declared its willingness to pay only a proportional distinction award to whole-time and distinguished members of the clinical departments for that proportion of their working time which is adjudged to be given to treatment and care of patients. In fact no whole-time clinician in the University service will ever be eligible for a whole-time distinction award, whether Grade A, B, or C.

If the work of a distinguished medical man or woman of science in the University is applied directly or indirectly to the patient, then it should not be beyond the wit of a willing English as well as of a Northern Ireland Treasury to find a way. This would make it possible to treat all those engaged in education, research, and therapeutics on the same financial basis.

You, Sir, have emphasized the main points. We would advocate the justice, the necessity, and the practicability of treating uniformly all professors and their staffs, including those of "so on."—We are, etc.,

Birmingham. A. C. FRAZER,
London. A. ST. G. HUGGETT,
Joint Secretaries,
Conference of Non-clinical Professors.

POINTS FROM LETTERS

Correction

Wing Commander T. C. MACDONALD and Flight Lieutenant I. H. WATSON write: In our paper "Sulphonamides and Acute Tonsillitis" (February 17, p. 323) Table II should be cancelled and replaced by:

TABLE II.—*Doctor's Initial Assessment of Severity Connected with Presence or Absence of Beta-haemolytic Streptococci in the Throat Swabs Taken at First Examination*

Severity	Beta-haemolytic Streptococci		Total
	Present	Absent	
Mild	17 (38·6%)	27 (61·4%)	44 (100%)
Moderate or severe	24 (63%)	14 (37%)	38 (100%)
Total	41	41	82

$\chi^2 = 3{\cdot}972$, which is greater than the significant level of 3·84.

This change does not affect the main argument.

Obituary

R. G. McGOWAN, M.D., D.P.H.

Dr. R. G. McGowan, who was in practice in Manchester for over 50 years, died at his home in Cheetham Hill on February 18, aged 77.

Robert George McGowan was born at Norwich in 1873 and was educated at Aberdeen University, where he graduated M.B., C.M. in 1894 before he was 21. He proceeded M.D. in 1901 and took the D.P.H. in 1899. His first five years in practice were spent as assistant to Dr. Buchanan, of Coleford, with an interval as house-surgeon at the Chesterfield and North Derbyshire Infirmary. In 1899 he went to Manchester, where he remained in practice until his death. In 1902 he began his long and very varied connexion with the B.M.A., at the famous meeting of the Association at which the new Articles of Association and By-laws were confirmed. Manchester was then divided into five divisions, and he became honorary secretary of the North Division, retaining that position on the amalgamation of the five into the Manchester Division until 1943, a continuous period of 42 years. During this time he was chairman of the Division in 1936 and again from 1943 to 1946, and president of the Lancashire and Cheshire Branch in 1931 and from 1944 to 1946. He persistently refused to attend representative meetings or to become a member of Council, but was an efficient member of special committees, serving in 1921 on the Parliamentary Elections Committee, the Protection of Practices Committee (1936–48), and the Conference on Foods and Drugs in 1928, but his favourite was the Insurance Acts Committee, of which he was a member in 1923 and again from 1932 to 1939. He was elected a vice-president of the B.M.A. in 1944, a well-earned honour which gave great satisfaction to his colleagues in Manchester. In addition he devoted much time and energy to the Manchester Medical and Panel Committee, of which he was honorary secretary or chairman almost to his death, and to the Local Assurance Committee. In 1927 he was presented with a gold cigarette-case and a cheque for £1,000 by his fellow doctors in Manchester, particularly the panel doctors, in recognition of his great efforts on their behalf; at the same time his wife was given a pearl and platinum necklace in appreciation of her assistance. In 1929 he accepted the onerous position of secretary for the meeting of the Association held in Manchester under the presidency of the late Professor A. H. Burgess. When the Manchester panel doctors adopted the attendance system of payment, an office with clerks became necessary. This developed into a department offering clerical, advisory, and accountancy facilities to the profession, which on the formation of the British Medical Bureau became an efficient and lucrative branch of it. Dr. McGowan was active in its management as a director, and ultimately became a director on the board of the Bureau itself. He held this office until the Bureau was dissolved. When the Association met in Winnipeg in 1930 he attended the meeting as vice-president of the Section of Medical Sociology and History of Medicine.

In his earlier days he developed an aptitude for photography, particularly of his dogs, one of which always accompanied him on his rounds. He was also a keen tennis and golf player, at both of which he exhibited considerable skill. As a chairman of committees he was in his element. His flair for seizing upon the essentials of a memorandum and detecting any fallacies made for efficiency, and he had little sympathy with those inclined to magnify details or lack precision in their grasp of a subject. He was a tower of strength to the profession in struggles with local bureaucracy or insurance committees, but his kindly, if autocratic, help to a colleague in trouble or distress is known only to those whom he assisted. He was second to none in his regard for the high standards and welfare of the profession.—J. D. E.

GENEVIEVE REWCASTLE, O.B.E., M.B., D.C.H.

Dr. Genevieve Rewcastle, who was Assistant Medical Director-General, W.R.N.S., during the whole of the recent war, died on February 18.

She was educated at the University Colleges of Galway and Dublin, and in 1921 qualified M.B., B.Ch., B.A.O. at the National University of Ireland. After being house-physician at St. Ultan's Hospital, Dublin, she was appointed assistant school medical officer for Sheffield. From 1931 to 1939 she was in private practice, concerning herself solely with disorders of women and children. During these years she was also personal clinical assistant to Dr. Donald Paterson at the Hospital for Sick Children, Great Ormond Street. In 1939 she was appointed medical superintendent of the W.R.N.S. and in 1940 was commissioned in the R.N.V.R., thereby having the distinction of being the first woman doctor to be appointed to the Royal Navy. In view of her new status, she was appointed to the staff of the Medical Director-General of the Navy as his assistant in matters concerning the W.R.N.S. She was promoted surgeon lieutenant-commander in 1945, being the only woman to hold this rank. In her capacity as assistant to the Medical Director-General and senior woman medical officer in the Royal Navy, she played an important part in maintaining an efficient medical service for the women in the Navy, and she was awarded the O.B.E. in 1946 in recognition of her wartime services. After the war she returned to Great Ormond Street and took the D.C.H., and then went to work as a maternity and child-welfare officer in South-east London.

Dr. Rewcastle was a woman of wide interests. She was president of the Catholic Women's League from 1934 to 1938 and chairman of the National Board of Catholic Women from 1945 to 1947. She was a member of the Westminster City Council and of the housing committee of the L.C.C. At the last general election she stood as Conservative candidate for West Willesden and polled 17,848 votes. In 1926 she married Mr. C. S. Rewcastle, K.C., and had three children. Her daughter has recently started her clinical studies at St. Bartholomew's Hospital.

ALBERT RAMSBOTTOM, *M.C.*, M.D., F.R.C.P.

Dr. Albert Ramsbottom, emeritus professor of clinical medicine in the University of Manchester, and at one time a censor of the Royal College of Physicians of London, died suddenly on February 19 at the age of 73.

Albert Ramsbottom was born at Middleton, Lancashire, in 1877. He received his medical education at Manchester University, graduating M.B., Ch.B. in 1901. This was followed by residential appointments at the Manchester Royal Infirmary, the Salford Union Hospital, the Convalescent Hospital of the Royal Infirmary, and finally that of resident medical officer at the

Infirmary. He took the D.P.H. in 1903, and proceeded M.D. by thesis in 1906. After hospital residence he became assistant medical officer at the Manchester Royal Infirmary, and held this important clinical and teaching post for many years until, in 1912, he was elected to the honorary medical staff as assistant physician. He was one of the first men in Manchester to take up Almroth Wright's opsonin work and to use it in diagnosis and treatment. Throughout the 1914–18 war he served with the R.A.M.C., and was awarded the Military Cross. During the war his cheerful nature, determination, and fund of good stories made him a popular member of the units with which he served.

In 1921 Ramsbottom became professor of clinical medicine at Manchester University and an influential member of the medical faculty and senate. He joined with his senior colleague, Judson Sykes Bury, in writing a textbook of clinical medicine, and after the war he collaborated with another senior colleague in a small book on clinical examination in diseases of the lungs. He contributed but rarely to current medical literature, being much more of a teacher than a writer; but as a teacher he was extremely good, and was much sought after by his students. His wide experience of hospital and consultant practice enabled him to deal excellently with those essential points in diagnosis and treatment which would be most useful to men destined for general practice, and which a whole-time scientific professor might not so easily appreciate. He kept well abreast of medical progress, and was skilful in separating the grain from the chaff. In 1920 he was elected a Fellow of the Royal College of Physicians of London. He was an examiner in medicine for Manchester University, and for four years for the Conjoint Board in London also. In 1935 he became a councillor of the Royal College of Physicians and a censor the next year. This was only the second instance in the long history of the College of a provincial Fellow being elected to this office. On his retirement from the honorary staff of the Manchester Royal Infirmary he was made honorary consulting physician.

Ramsbottom was a typical Lancastrian, with a good knowledge of humanity and a cheery manner. He held definite views and expressed them forcibly and clearly in debate. As a youth and student he was a keen cricketer, and played often in Lancashire League club games. For many years he bred champion bulldogs, but, finding them difficult to rear, he later took to Dandie Dinmonts. He sometimes acted as a judge at dog shows. —E. M. B.

MAJOR-GENERAL C. W. MAINPRISE, D.S.O.

Major-General Cecil Wilmot Mainprise, formerly commandant of the Royal Army Medical College, died on February 16, aged 77.

He was born in 1873 at Southsea, the son of the late W. B. Mainprise, Paymaster-in-Chief of the Royal Navy. He was educated at the Royal Naval School, Newcross, and St. Bartholomew's Hospital, where he qualified M.R.C.S., L.R.C.P. in 1897. The next year he received a commission in the R.A.M.C., and went to India. In 1903–4 he served with the Tibet Expedition, commanding the only British field hospital. During the 1914–18 war he first commanded an Indian cavalry field ambulance and later a casualty clearing-station in France; he was awarded the D.S.O. for his services. He was then posted to Ireland to take charge of a military hospital at Curragh. In 1918 he commanded 80 General Hospital at Salonika, and during the offensive against Bulgaria was A.D.M.S. Advanced Base and later acting D.D.M.S. at Sophia.

After the war he returned to India and took part in the Afghan war (1919) as A.D.M.S. He then commanded the British station hospital at Bangalore, and after his return to England was commandant of the Royal Army Medical College from 1924 to 1926, in which year he retired.

N. B. STEWART, M.B., Ch.B.

Dr. Norman Burgess Stewart, who was a colleague of Sir Wilfred Grenfell in Labrador, died suddenly in Edinburgh on February 14, at the age of 72.

Born at Maybole, Ayrshire, he received his early education at the Royal High School, Edinburgh, where he excelled as a sprinter. While there he broke the school record for the 100 yards, and his time at this distance stood as a record for 40 years. Later at Glasgow University he gained a blue for running. He graduated M.B., Ch.B. at Glasgow in 1903. While a student he interrupted his studies to serve in the Boer War. After a period as house-surgeon at the Glasgow Royal Infirmary and an assistantship at Dennyloanhead, in 1905 he joined Sir Wilfred Grenfell in the work of the Royal National Mission to Deep Sea Fishermen, less than 10 years after its founding. He worked in Labrador for five years, spending the summers at Indian Harbour and the winters at the Mission Headquarters at St. Anthony, Newfoundland. He did splendid work in this lonely and inhospitable part of the globe. He was one of the first white men to meet and congratulate Peary on his return from the North Pole. In 1911 he joined the English Presbyterian mission at Wukingfu, Swatow, China, and served there till 1925. His work as a medical missionary was interrupted by the 1914–18 war, in which he saw service with the R.A.M.C. in Macedonia and Bulgaria. In 1925 he returned to Edinburgh and took up general practice, in which he continued to the time of his death.

As a man, Stewart was notable for his strong religious faith, for his integrity of life, and for a wonderful capacity for friendship: it is safe to say that he had no enemies. He was greatly beloved by his many patients and by his professional colleagues. He was a happy man, whether engaged in the arduous duties of a large and widespread practice—or on holiday with his family amidst the glories of Western Ross, plying the rod on river or loch and absorbing the calm of the hills. He was also keen on B.M.A. affairs. He was a member of the Insurance Acts and General Medical Services Committees and their Scottish Subcommittees, a member of the Charities Committee, a representative in the Representative Body, and a member of the Edinburgh Executive Council and Local Medical Committee.

His wife, who was a daughter of Dr. David Hadden, of Falkirk, died four years ago. They leave two daughters and a son (a general practitioner in Edinburgh), to whom we extend our deepest sympathy.—D. S. R.

Miss Eleanor Storr writes: I got to know Norman Stewart very well, as every winter he was stationed at St. Anthony, in Northern Newfoundland, where I was working. The summers he spent on the Labrador at Indian Harbour, the hospital there being open only when the schooners came up north in the summer for the cod fishing. He was very much loved and was a fine Christian character. Every call for help received a ready response, whether it meant travelling in an open boat

whatever the weather, or by sledge and dogs with the thermometer well below zero, or in the spring when travelling was very difficult. At this time of year the harbours were often filled with slob ice which made navigation almost impossible, while on land the soft condition of the snow made progress equally hazardous. But, however difficult the conditions, he always found some way through, and his presence brought not only medical help but also strength and comfort to those in need.

Lieutenant-Colonel D. L. HARDING, D.S.O., died on February 13 in Dublin at the age of 74. He was educated in Ireland, and qualified L.R.C.P.I., L.M. in 1900. He joined the R.A.M.C. in South Africa, where he was employed as a civil surgeon, in 1901. He then served for a time in that country and in India. In 1907 he became a Fellow of the College of Surgeons of Ireland, and in 1913 he obtained the D.P.H. He served in France throughout the whole of the 1914–18 war, and was awarded the D.S.O. and twice mentioned in dispatches. Later he was stationed in Hong Kong, where he took an active part in B.M.A. affairs, and was elected president of the Hong Kong and China Branch in 1923. He retired from the R.A.M.C. in 1926.

Medico-Legal

RESPONSIBILITY OF HOSPITAL MANAGEMENTS

[FROM OUR MEDICO-LEGAL CORRESPONDENT]

The question of the responsibility of hospital authorities in law for the skilful and careful treatment by the hospital staff of patients in their care has often since 1909 been the subject of decisions in the courts.

In 1909 in the case of *Hillyer* v. *St. Bartholomew's Hospital*[1] Lord Justice Kennedy in the Court of Appeal enunciated the principle that the only duty undertaken by the governors of a public hospital to a patient admitted to the hospital was that, while there, he should be treated only by experts, whether surgeons, physicians, or nurses, of whose professional competence the governors had taken due care to assure themselves, and who had at their disposal for the care and treatment of the patient fit and proper apparatus and appliances; and that the hospital authority was not liable in damages if members of its professional staff acted negligently towards the patient in some matter of professional care or skill.

In that case Dr. Hillyer consulted a consulting surgeon attached to Bart's and was admitted for examination by him. While being examined under a general anaesthetic in the theatre one of his arms was badly bruised and the other badly burned, but there was no evidence of how it had happened. The Court of Appeal held that the governors were not responsible.

Under this principle it was held in 1936[2] that the committee of a voluntary hospital was not responsible for the negligence of two of its staff nurses whose negligence in administering an overdose of paraldehyde had killed a patient.

In 1942, however, the Court of Appeal had before it a case[3] in which a little girl of 5 was badly disfigured as a result of the negligence of the radiographer of a hospital managed by the Essex County Council under the Public Health Act of 1936. The radiographer failed to shield her face properly during treatment by Grenz rays for warts. The Court held that, though the actual decision in Hillyer's case could be supported on other grounds, Lord Justice Kennedy's principle, which had been acted upon as good law for 33 years, was wrong. The Lords Justices decided that Essex County Council was responsible for the negligence of the radiographer because he was its servant, and that it would have been responsible for negligent nursing by a nurse for the same reason. But they distinguished between the "servants" of the hospital authority and the consultant staff, those not employed on a contract of service but "for services," for whom they said the authority was clearly not responsible. Responsibility for house-surgeons was expressly left open, only to be decided five years later,[4] when a local authority was held liable for the negligence of a house-surgeon employed in one of its hospitals who confused cocaine and procaine.

A further step has now been taken in clarifying the picture by a decision of the Court of Appeal.[5] A patient in a hospital for which the Minister of Health is responsible sued the Minister for negligence in the post-operative treatment of his hand, for which either the resident medical officer, house-surgeon, or nursing staff were alleged to have been to blame. According to Lord Justice Somervell's judgment, the patient was a general labourer who in 1948 was diagnosed as having Dupuytren's contracture. An operation was performed and the hand was splinted for some 14 days. When the hand was released, the two fingers which had been operated on were stiff, and the trouble appeared to have spread to the two sound fingers. After two manipulative operations the patient's left hand still remained painful and useless. The allegations of negligence were to the effect that (1) the hand was bandaged too tightly, (2) no or no sufficient heed was paid to the patient's complaints made throughout the period of intense and excessive pain, and (3) the splint should have been loosened or the hand inspected.

The Court held the Minister of Health liable. Lord Justice Somervell and Lord Justice Singleton decided the case on the ground that the resident medical officer, house-surgeon, and nurses were all "servants" properly so called in the sense that consultants are not.

Lord Justice Denning, however, based his views on the wider principle that, if anyone is under a duty of care, as the hospital authority is to the patient, he cannot get rid of his duty by delegating it to a servant or agent or independent contractor, but is responsible for the negligence of any of them in performing the duty which is his. He illustrated this by the example of the shipowner, who, being under a duty of care in the navigation of the ship, is responsible for its breach whether by the hand of the captain, who is his "servant" under a contract of service, or by the hand of the pilot, who is an independent contractor.

On this principle the hospital authority would be just as much responsible for the negligence of a consultant in performing an operation as for the radiographer in treating the little girl's warts. What matters is who employs the doctor, not whether he is employed on a contract of service or "for services." If the surgeon is employed by the patient, as is commonly the case in an operation performed in a nursing-home, the proprietors of the home would not be responsible for his negligence: they do not employ him.

As Lord Justice Denning said, it may be that the cause of the fallacy in Hillyer's case was the anxiety of the courts to protect the voluntary hospitals, giving treatment for nothing, from the possibly disastrous economic results of responsibility for the errors of their staffs. It is significant that it was at the expense of a local authority that the fallacy was corrected.

360-DAY BABY

The case of the baby born after an alleged gestation period of 360 days ended on February 21 after three years' litigation, when the husband was granted a decree *nisi* on the grounds of the adultery of his wife, the mother of the child.[6] Judgment had been given by the House of Lords[7] allowing the appeal of the husband from the Court of Appeal. The case had been remitted to the High Court so that a decree might be made.

---

1 (1909), 2, K.B., 820.
2 *Strangeways, Lesmere* v. *Clayton* (1936), 2, K.B., 11.
3 *Gold* v. *Essex C.C.* (1942), 2, K.B., 293.
4 *Collins* v. *Herts C.C.* (1947), K.B., 598.
5 *Cassidy* v. *Ministry of Health. The Times.* February 16.
6 *Daily Telegraph*, February 22.
7 *British Medical Journal*, 1950, **2**, 1451.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles for the week ending February 10 (No. 6).

Figures of notified *cases* are for: (*a*) England and Wales (London included). (*b*) London (administrative county). (*c*) Scotland. (*d*) Northern Ireland. (*e*) Eire. Figures of *births and deaths* and of *deaths* recorded under each disease are for: (*a*) The 126 great towns in England and Wales (London included). (*b*) London (administrative county). (*c*) The 16 principal towns in Scotland. (*d*) The 10 principal towns in Northern Ireland. (*e*) The 13 principal towns in Eire. A dash — denotes no cases; a blank space denotes disease not notifiable or no return available

The table is based on information supplied by the Registrars-General of England and Wales, Scotland, Northern Ireland, and Eire, the Ministry of Health and Local Government of Northern Ireland, and the Department of Health of Eire.

Disease	1951 Week Ending February 10					1950 Corresponding Week					1942–50 England & Wales Corresponding Week		
	(*a*)	(*b*)	(*c*)	(*d*)	(*e*)	(*a*)	(*b*)	(*c*)	(*d*)	(*e*)	Highest	Median	Lowest
Diphtheria	44	4	9	1	5	71	6	24	5	6	934	402	71
Deaths	1	1	—	—	—	1	—	—	—	1			
Dysentery	985	77	216	5		325	10	42	—	—	337	164	49
Deaths		—		—					—	—			
Encephalitis, acute	9	2	1	—	1	4	1	1	—	—	4	1	—
Deaths		—			1		—						
Erysipelas			27	2	5			29	7	12			
Food-poisoning	82	22		1		32	8		—				
Infective enteritis or diarrhoea under 2 years				16	18					23			
Deaths	15		2	1	—	8		6	3	1			
Measles*	21,633	2,929	197	38	99	4,251	38	75	346	76	20,627	6,179	1,211
Deaths		1	—	—	—			—	—	—			
Meningococcal infection	52	4	9	2	4	59	3	17	1	5	166	94	30
Deaths		—	—				2	—					
Ophthalmia neonatorum	42	1	19	1	1	34	1	5	—	—	81	63	34
Pneumonia, influenzal	3,091	164	54	48	96	1,228	71	36	18	—	1,832	1,228	871
Deaths (from influenza)†	864	76	27	13	50	80	11	8	1	2			
Pneumonia, primary			331					368					
Deaths	662	105		13	22	378	73		12	12			
Poliomyelitis, acute:													
Paralytic	12	—	2	—	3	37	3	—	1	8	37	11	1
Non-paralytic	7	—											
Deaths§	1	—			1	4	—			—			
Puerperal fever			6				—	3					
Puerperal pyrexia‖	90	12	9	1		124	16	6	4		173	133	93
Scarlet fever	892	63	157	31	48	1,897	113	188	144	120	2,069	1,468	1,130
Deaths		—	—	—	—			—	—	—			
Smallpox	—	—	—	—		—	—	—	—	—			
Deaths				—					—	—			
(1) Tuberculosis, respiratory			168	32				156	35				
(2) Tuberculosis, non-respiratory			26	8				30	5				
(1) Deaths	193	19	33	6	17	205	24	30	4	16			
(2) Deaths		3	1	2	—		2	4	1	6			
Typhoid fever	5	2	—	—	—	3	—	—	—	2			
Deaths¶	—	—	—	—		—	—	—	—	—	14	10	5
Paratyphoid fever	6	—	1 (B)	—		6	3	—	—	—			
Whooping-cough	5,110	394	716	22	81	1,657	72	368	65	49	3,011	1,657	1,212
Deaths	12	3	—	—	—	4	—	1	—	1			
Deaths (0–1 year)	294	42	32	9	12	318	35	52	12	24	672	405	318
Deaths (excluding stillbirths)	9,090	1,324	817	168	386	6,537	1,026	876	155	223	6,926	6,537	4,954
Annual death rate (per 1,000 persons living)			16·4					17·6					
Live births	7,101	1,105	855	218	353	7,363	1,191	902	255	288	9,547	7,363	6,056
Annual rate per 1,000 persons living			17·2					18·1					
Stillbirths	174	19	27			183	33	22			308	224	183
Rate per 1,000 total births (including stillborn)			31					24					

* Measles not notifiable in Scotland and returns are approximate. † Includes primary form for England and Wales, London, and N. Ireland. § The number of deaths from poliomyelitis and polio-encephalitis for England and Wales, and London (administrative county), are combined. ‖ Includes puerperal fever for England and Wales and for Eire. ¶ Deaths from paratyphoid fever are combined with those from typhoid fever.

Vital Statistics

Influenza

The incidence of influenza throughout the country continues to wane. In England and Wales in the week ending February 17 the death rate from influenza in the great towns declined from 41.7 to 23.7 per million. There were falls in all regions except the southern. The proportion of influenza deaths in the age group of 55 years and over was 88.8%.

Pneumonia deaths in the great towns decreased from 662 to 535, and notifications from 1,515 to 1,002. In England and Wales notifications of pneumonia cases fell from 3,091 to 2,115.

Regional totals of influenza deaths in the great towns in the week ended February 17 and rates per million (in parentheses) were: Northern 8 (6.45), East and West Ridings 63 (27.18), North-western 89 (24.64), North Midland 36 (34.31), Midland 77 (33.52), Eastern 19 (25.26), London and South-eastern 116 (16.52), Southern 23 (28), South-western 27 (38.33), Wales 24 (36.18), all great towns 492 (23.72).

Influenza deaths in the great towns by age groups were: under 1, 4; 1–4, 2; 5–14, 0; 15–24, 4; 25–34, 3; 35–44, 6; 45–54, 36; 55–64, 79; 65–74, 133; 75 and over, 225; all ages, 492.

In the great towns the following cases of and deaths from pneumonia, and deaths from influenza, have been reported:

	30/12	6/1	13/1	20/1	27/1	3/2	10/2	17/2
Pneumonia:								
Cases ..	502	956	1,300	1,455	1,720	1,664	1,515	1,002
Deaths ..	383	770	982	843	790	830	662	535
Influenza:								
Deaths ..	102	458	890	1,099	1,239	1,269	865	492

Totals since the first week of the year in the great towns compared with the preceding two years are as follows:

	1949	1950	1951
Pneumonia:			
Cases	4,217	3,980	9,658
Deaths	2,516	2,222	5,417
Influenza:			
Deaths	485	402	6,308

The deaths cannot be related to the cases in these Tables.

Smallpox

There have been no cases of smallpox among contacts of the 12-year-old girl who arrived with the disease on February 12. She had travelled to London from Bombay on the s.s. *Strathmore*.

A large outbreak of smallpox is reported in Calcutta (*The Times*, February 22). In one week this month 462 deaths were recorded—said to be the highest number of smallpox deaths there in a week during this century.

Infectious Diseases

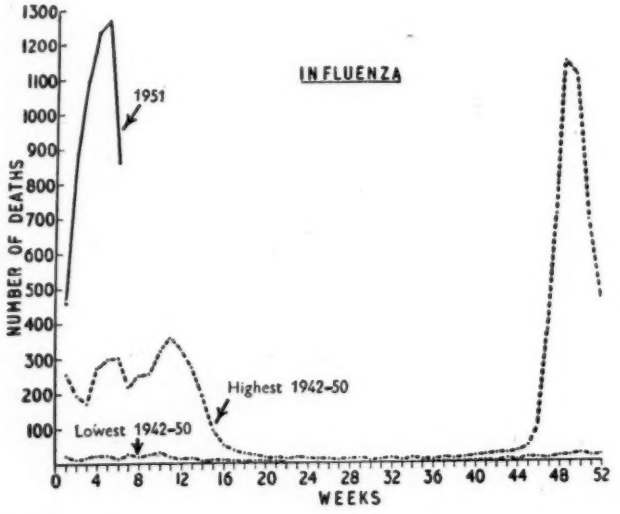
During the week ending February 10 there were 194 more notifications of whooping-cough than in the preceding week, and the total was the largest recorded since notification began. Only small variations occurred in the local returns of whooping-cough, with the exceptions of an increase of 70 in Middlesex and a decrease of 76 in Lancashire.

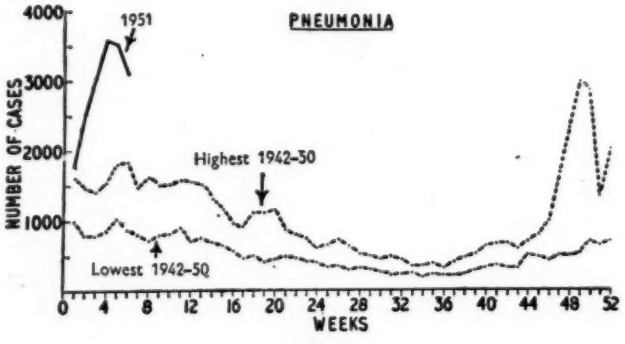
A large increase, 5,312, was recorded in the number of notifications of measles, and the total reverted almost to the record high level at the beginning of this year. The increase in incidence was mainly due to a further rise in London and the surrounding counties. The largest increases were Essex 587, London 561, Yorkshire West Riding 479, Middlesex 471, Southampton 384, Kent 350, Lancashire 339, Surrey 302.

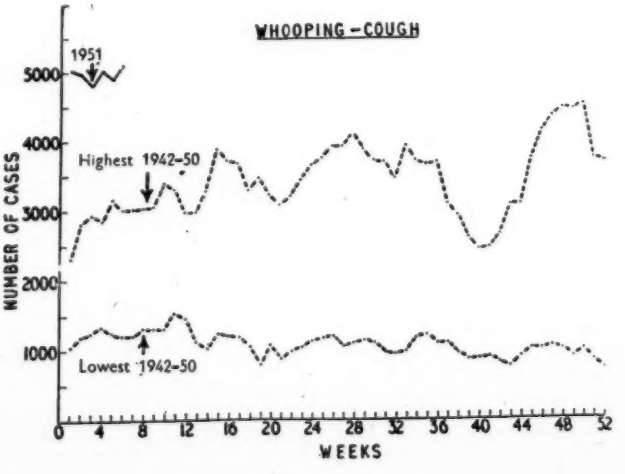
The chief feature of the returns for diphtheria was a decrease of 4 in Warwickshire. A decrease of 422 was reported in the number of notifications of acute pneumonia; the largest local fall was 122 in Lancashire. The notifications of acute poliomyelitis were 13 fewer than in the preceding week, and the total was the lowest recorded for 87 weeks.

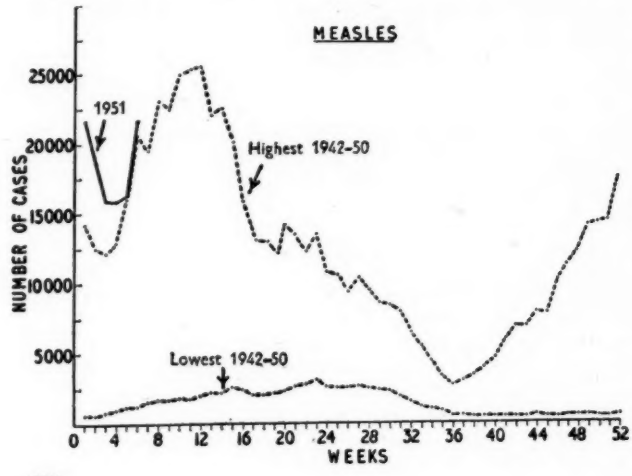
Graphs of Infectious Diseases

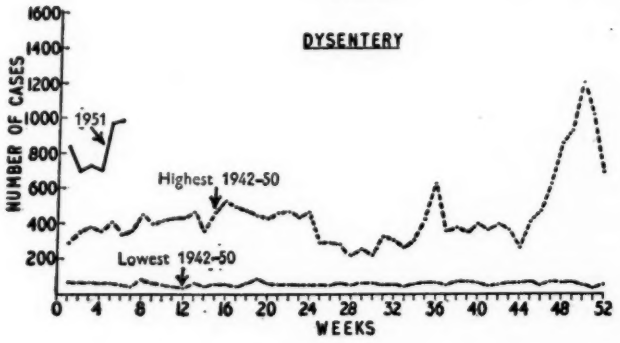
The graphs below show the uncorrected numbers of cases (deaths from influenza) of certain diseases notified weekly in England and Wales. Highest and lowest figures reported during the nine years 1942–50 are shown thus -------, the figures for 1951 thus ————. Except for the curves showing notifications in 1951, the graphs were prepared at the Department of Medical Statistics and Epidemiology, London School of Hygiene and Tropical Medicine.











Poliomyelitis

In the week ending February 17 notifications of poliomyelitis were as follows: paralytic 18 (12), non-paralytic 6 (7); total 24 (19). Total uncorrected notifications for the first seven weeks of the following years have been as follows: 1947, 74; 1948, 291; 1949, 154; 1950, 329; 1951, 223.

Dysentery

A rise of 18 occurred in the number of notifications of dysentery during the week ending February 10. Large rises were recorded in the outbreaks in Essex, Lancashire, Leicestershire, and Middlesex. The largest returns during the week were: Middlesex 143 (Ealing M.B. 60, Willesden M.B. 22, Edmonton M.B. 17, Tottenham M.B. 13, Enfield U.D. 12); Lancashire 132 (Liverpool C.B. 39, Oldham C.B. 18, Darwen M.B. 17, Southport C.B. 11); London 77 (Islington 30); Essex 76 (Walthamstow M.B. 30); Leicestershire 72 (Leicester C.B. 64); Suffolk 50 (Ipswich C.B. 31, Deben R.D. 10); Yorkshire West Riding 47 (Sheffield C.B. 11); Surrey 45 (Wimbledon M.B. 26); Warwickshire 39 (Birmingham C.B. 34); Sussex 32 (Chailey R.D. 14); Cheshire 30 (Wallasey C.B. 11, Wirral U.D. 10); Yorkshire East Riding 22 (Kingston-upon-Hull C.B. 20); Buckinghamshire 19 (Wycombe R.D. 16); Durham 16; Kent 14; Northamptonshire 12; Glamorganshire 12; Gloucestershire 11 (Bristol C.B. 11); Staffordshire 11; Oxfordshire 10; Anglesey 10 (Llangefni U.D. 10).

Industrial Diseases and Accidents

The number of workpeople (other than seamen) in the United Kingdom whose deaths from accidents in the course of their employment were reported in January was 141, compared with 116 in the previous month and 106 (revised figure) in January, 1950 (*Ministry of Labour Gazette*, February, 1951). These deaths included 33 of men underground in coalmines.

The following cases of industrial diseases were reported in January: lead-poisoning, 10 (smelting of metals 3, electric accumulator works 3); toxic anaemia, 1; compressed-air illness, 2; anthrax, 6; epitheliomatous ulceration, 11 (pitch 7, tar 2, oil 2); chrome ulceration, 20; total, 50. There was one death from epitheliomatous ulceration.

Week Ending February 17

The notifications of infectious diseases during the week in England and Wales included: scarlet fever 904, whooping-cough 5,662, diphtheria 40, measles 24,585, acute pneumonia 2,115, acute poliomyelitis 24, dysentery 972, paratyphoid fever 11, typhoid fever 4. One case of smallpox was imported during the week. The deaths from influenza in the great towns numbered 492.

Mortality in First Six Weeks of Year

The number of deaths registered in the great towns during the first six weeks of the year has been considerably in excess of the number registered in the corresponding periods of recent years. The following Table compares the experience of the last three years:

Year	Deaths in the Great Towns		
	All Causes	Pneumonia	Influenza
1949	37,203	2,094	327
1950	35,926	1,869	326
1951	58,958	4,882	5,815

A rise in mortality has been observed throughout the country. The largest increase has been in the North-west Region, where the outbreak of influenza was concentrated at the beginning of the year. The geographical distribution of deaths for the last two years is shown in the following Table:

Region	Deaths from All Causes in Great Towns		
	1950	1951	1951 as % of 1950
Northern	2,503	3,524	140
East and West Riding ..	4,299	6,869	160
North-western	6,593	13,521	205
North-midland	2,065	3,133	152
Midland	3,515	5,877	167
Eastern	1,379	2,152	156
London and S.E. ..	10,766	16,843	156
Southern	1,617	2,196	136
South-western	1,917	2,880	150
Wales	1,272	1,951	153
Edinburgh	888	1,211	136
Glasgow	1,907	2,787	146
Belfast	642	1,255	195
Dublin	801	1,396	174

In London the increase in mortality has been due to diseases of the respiratory system and the circulatory system. The deaths for the last two years are shown in the Table below:

	London	
	1950	1951
All causes	5,728	8,979
Influenza	42	569
Pneumonia	327	688
Bronchitis	582	1,562
Diseases of circulatory system ..	1,928	2,758

As might be expected from these causes of death, the increase in mortality has been mainly at the expense of the older persons, and at the younger ages no rise has occurred. The age distribution for the deaths in London for the past two years is as follows:

Ages	London		
	1950	1951	1951 as % of 1950
Under 45	727	742	102
45–	482	611	127
55–	923	1,434	155
65–	1,550	2,555	165
75+	2,046	3,637	178
All ages ..	5,728	8,979	157

Medical Notes in Parliament

Change in Ministry of Health

On February 22 Mr. WALTER ELLIOT moved for the annulment of the Order in Council of January 29 entitled "The Transfer of Functions (Minister of Health and Minister of Local Government and Planning) (No. 1) Order." He pointed out that the proposal to annul was made because this was the only way in which the subject could be raised in the House. It sounded reasonable to say that health should stand by itself and have nothing to do with local government and housing, but the tuberculosis services immediately rose to say that "housing and tuberculosis are so closely connected that a positive sputum is almost the only passport to rapid rehousing." The curative services were closely linked with preventive services and would remain so linked. He recalled that in 1919 the Ministry of Health added to existing preventive powers the actual care of sickness under the National Insurance Act, 1911. Morant said at that time that the advocates of a special *ad hoc* body for health work had laid too much stress on treatment to the neglect of preventive medicine, and he had wanted the body responsible for the treatment of disease to be the same as the body for preventing it. The severance of the two was fraught with danger. Mr. Elliot pointed out that for the first time for many years the care of the sick had passed out of the Cabinet as a result of this Order—or, rather, Scottish health was left in the Cabinet, but English health was left out.

Mr. F. MESSER said the expansion of services had thrown on the Ministry of Health an immense amount of work and was the reason why some M.P.s felt that a division of functions would be to the interests of the country. He, however, held that the country could not have an efficient health service unless it was a unified one, and he was anxious that local government units should not be responsible to different Ministries.

Mr. EMRYS ROBERTS said the Minister of Health had almost a full-time job in looking after the National Health Service. The functions under the Public Health Acts which were to be referred to the Ministry of Local Government and Planning were concerned with dangerous structures and matters of that nature and were not health functions in a strict sense.

Mr. J. E. MACCOLL pointed out that powers to deal with pollution of the water supply were not to be referred to the Ministry of Health but were to go to the Ministry of Local Government and Planning. He said there was a danger that the Ministry in its present form would find itself with too little to do and would be tempted to interfere with the delegation of the hospital and health services administration to the regional boards and executive councils. He asked whether the Government had considered combining with the National Health Service the functions of the Ministry of National Insurance in order that one welfare department should deal with functions already largely delegated to the assistance boards and regional hospital boards.

FUNCTIONS OF RECONSTITUTED MINISTRY

Dr. CHARLES HILL said the effect of the Order was at the centre. It did not of itself change the organization of the local authority or the relationship of its services officers one to another. At the moment it was a central transfer between departments. So far as the Minister of Health was concerned this relief was long overdue. The National Health Service represented something which would tax the resources of a Ministry and a Minister. He believed that Parliament should preserve the unity of the health services, curative and preventive. Some of the functions which were to be removed from the Ministry of Health were thinly related to health. House building need not remain a function of that Ministry. For many years the pressure of its local government activities had tended to divert its attention from its primary health function. It was reassuring that supervision of work in infectious disease, maternity and child welfare, notification of births, qualifications of officers, and all such matters remained under the aegis of the Ministry of Health. Sewerage and sewage disposal, building and sanitation by-laws, water supplies, wash houses, canal boats, tents, and the sanitary problems of hop pickers had largely become engineering functions and it was right that they should go. Other functions were closer to health and should remain with the Ministry of Health. About a few functions there could be reasonable doubt. He instanced advisory functions exercised at the centre over local authorities in the discovery of nuisances and action by local officers. This function was being transferred to the new Ministry, and if it were to do its work properly it would need a medical staff. Nevertheless Dr. Hill hoped this Ministry would not be provided with a medical staff, because there was already too much dispersal of medical staff in the public service. It would be a new situation if the Minister of the new department of Local Government and Planning could issue directives or details of new procedures to be followed in respect of cleanliness. The supervision and provision of sanitary conveniences in shops and offices had become an urgent public health need. Responsibility for that was to pass to the new Ministry unspoiled by medical staff and untroubled by medical advice.

The breaking up of the Ministry of Health had provided an opportunity to bring within the scope of that Ministry the industrial health service and that part of the Ministry of Food which dealt essentially with health education. There was an opportunity to gather up medical services and concentrate them in one Ministry staffed by an efficient medical personnel. It was a pity that the Government proposal stopped where it did. He approved in general of the proposed change, but said it would have been wiser to do more in concentrating health functions in one Health Ministry.

Mr. HERBERT MORRISON, replying to the debate, said he did not see why the good relations of the local authorities with the Ministry of Health should not continue with the Ministry of Local Government and Planning. They would largely find the same people functioning as before and it would be all right. The advantage of proceeding by Order as the Government had done was that if a little mistake was made it could promptly be altered by making another Order. If there was something imperfect about the present Order the Government would be happy to receive representations and to make the necessary revisions.

Dr. H. B. W. MORGAN said he disagreed with the procedure involved in the Order and also with the way in which the Order was framed. The way in which it dealt with health matters suggested there had been no real examination of the division between retained health functions and transferred health functions. The Government should take the Order back and come forward again with a better suggestion.

Mr. G. A. PARGITER hoped that at some time Mr. Morrison would given consideration to the general problem. He did not think it was really dealt with in this Order. He was afraid it would not work out too well.

Mr. WALTER ELLIOT said Mr. Morrison had not succeeded in dealing with the fundamental question of public policy.

The proposal that an address should be presented to His Majesty praying for the annulment of the Order was then negatived.

Coal for the Sick

Mr. ENOCH POWELL on February 19 opened a debate on the provision of domestic coal supplies for the sick and aged. He said the medical profession was fair and reasonable in its use of the right to issue certificates for extra coal, but very often no response followed from the coal merchants, who had no extra allocation to meet this demand.

After discussion, Mr. A. ROBENS, replying for the Ministry of Fuel and Power, said responsibility lay with the local fuel overseer. Priority certificates for extra coal were usually given on medical grounds, but it was not necessary to have a medical certificate, and the local fuel overseer

was authorized to use his discretion. There was nothing in the regulations which said that elderly persons should not have additional quantities unless they were bedridden. In the case of persons who were ill in bed and had a small stock of coal which would not last out for the length of the illness the additional coal must be delivered within seven days, and where the merchant with whom the invalid was registered could not make the delivery another merchant might supply.

Colonial Population Growth

In the debate on the Overseas Resources Development Bill on February 20 Mr. JAMES GRIFFITHS said the Colonial populations were increasing at a rate which created a danger of still further poverty. In the region covered by the Colombo plan, with 570 million people and an average income per head of £20 per annum, the population increased at the rate of 20,000 daily, and would be 720 millions in 20 years' time. In the British West Indies, according to present trends, the population would double in 30 years. In Tanganyika it was estimated that in 30 years' time the population would also have doubled, although Tanganyika was already a net importer of food.

Chest Clinics

Brigadier F. MEDLICOTT on February 22 asked how many chest clinics were in operation under the National Health Service, and how many of such clinics had effective *x*-ray apparatus for the diagnosis of tuberculosis.

Mr. H. MARQUAND replied that the number of clinics, including subsidiaries to main clinics, was 470, of which 264 had their own *x*-ray facilities. Others used facilities available near by. There were 73 new *x*-ray installations in 1950, and there would probably be about 50 more this year.

Other Business

In the House of Lords on February 21, in answer to a question, Lord HENDERSON said that the ratification of the Red Cross conventions agreed to in August, 1949, is still being urgently considered.

The PRIME MINISTER announced on February 26 that the Government accepted the Dale Committee's Report recommending the development of the industrial health services, which should be encouraged and properly co-ordinated with the general health services.

Special Schools.—At the beginning of 1950 there were approximately 28,000 children in England and Wales known to require education in special schools for subnormal pupils. Provision was made for rather more than 15,000.

School Milk.—One-third of last years' subsidy of £99m. on milk is due to the milk-in-schools scheme and to milk under the welfare-foods service.

Homoeopathy.—Since July, 1948, 105 nurses commenced their training at the Royal Homoeopathic Hospital. The number who abandoned their training before its completion was 47.

Canal Boats.—Mr. Dalton is consulting the local authority associations on whether there is a need for revised regulations governing conditions of sanitation and ventilation in canal boats.

The Services

A *Supplement* to the *London Gazette* has announced the following awards:

Territorial Efficiency Decoration and First Clasp.—Colonel G. B. Mitchell-Heggs, O.B.E., Lieutenant-Colonels N. C. Oswald, S. R. Trick, and W. E. Tucker, and Majors A. S. Bockless and M. W. Lloyd-Owen, R.A.M.C.

Territorial Efficiency Decoration.—Lieutenant-Colonel (Brevet Colonel) (Honorary Brigadier) F. A. E. Crew, T.D., F.R.S. (retired), Major (Honorary Lieutenant-Colonel) A. McD. Davies, Major J. B. Neal, Honorary Major W. S. J. Parr (retired), and Captains (Honorary Majors) E. N. Rees and R. G. Russell, R.A.M.C.

Universities and Colleges

UNIVERSITY OF OXFORD

Professor Jímenez Díaz, Director of the Institute of Medical Investigation, Madrid, will deliver a lecture on "The Treatment of Dysreaction Diseases by Nitrogen Mustard" in the Sir William School of Pathology, Oxford, on Tuesday, March 6, at 12 noon

UNIVERSITY OF LONDON

The degree of D.Sc. has been conferred on E. Lewis-Faning

UNIVERSITY OF WALES

WELSH NATIONAL SCHOOL OF MEDICINE

The third William Sheen Memorial Lecture will be delivered by Mr. Ernest Finch, late Professor of Surgery in the University of Sheffield, in the Reardon Smith Lecture Theatre, Park Place, Cardiff, on Friday, March 9, at 8 p.m. His subject is "The Influence of Welshmen on the Course and Development of British Medicine." All medical practitioners and present and past students of the Medical School are invited to attend the lecture.

ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

Through the generosity of the Leverhulme Trust the council of the College is in a position to award a scholarship (£250) for the purpose of research into problems connected with obstetrics and/or gynaecology. The scholarship may be held simultaneously with another appointment if, in the opinion of the council, sufficient time is available for research. Regulations and forms of application can be obtained from the secretary, 58, Queen Anne Street, London, W.1. The last day for receiving applications on the prescribed form is July 1.

A prize of £50 will be awarded by the council of the College in October, 1952, for the best original work on "The Improvement of Forceps Deliveries." Candidates must be registered medical practitioners in the British Commonwealth, but the prize may be awarded to a team of more than one practitioner working together in an obstetric unit. Entries, typewritten and limited to 2,000 words, must be received before July 1, 1952.

Medical News

Next Year's President of the B.M.A.

In response to the invitation of the Council of the British Medical Association Dr. A. W. S. Sichel, of Capetown, the President-Elect, has accepted the Presidency of the B.M.A. for the year 1951–2.

Malayan Artificial Limbs for South-east Asia

Malaya now makes its own artificial limbs and orthopaedic appliances, and also supplies other countries in South-east Asia. This service had a small beginning in 1948 in a shed in the grounds of the Kuala Lumpur General Hospital where two woodworkers made peg legs for people maimed in the war or by accident. A grant of £7,500 from the Government of the Federation resulted in the building of a modern factory, and to-day 25 expert craftsmen are employed. So far 500 limbs and 800 appliances have been made, together with hospital ward equipment and furniture.

Standardizing Anaesthetic Gas Cylinders

At a meeting of the Conference on Medical Gas Cylinders on January 24 it was announced that provisional agreement has been reached between representatives of the United Kingdom and the United States, in the International Standards Organization, on the introduction of certain colour markings and of non-interchangeable couplings for medical gas cylinders, to eliminate the possibility of the wrong gas being used. When the agreement is ratified the proposals should soon find their way into actual practice.

"Directory of International Scientific Organizations"

Details of more than 150 international scientific bodies are given in this Unesco handbook, now available at the Stationery Office (price 6s. net). The organizations are grouped in three main divisions: basic sciences, applied sciences, and miscellaneous. The applied sciences are subdivided to cover agricultural, engineering, and medical science. The details include brief outlines of the history, aims, facilities, and publications of each society, and particulars of its governing body and officers.

New Names for Drugs

The British Pharmacopoeia Commission has announced the following approved names: Paramethadione (for 5-ethyl-3:5-dimethyloxazolidine-2:4-dione, paradione). Ethopropazine (for *N*-(2-diethylamino-n-propyl)phenothiazine; lysivane is the hydrochloride). Diethylcarbamazine (for 1-diethylcarbamyl-4-methylpiperazine; hetrazan and banocide are the dihydrogen citrates). Lucanthone (for 1-2′-diethylaminoethylamino-4-methylthiaxanthone); nilodin is the hydrochloride). Solapsone (for tetrasodium 4:4′-bis-(γ-phenylpropylamino)diphenylsulphone-α:γ:α′:γ′-tetrasulphonate, sulphetrone).

Dublin Tuberculosis Service

According to the *Manchester Guardian* the municipality of Copenhagen has agreed to release Dr. Knud Winge temporarily from his post as chief physician to their chest clinic so that he may act as a consultant in the reorganization of the Dublin tuberculosis service. His secondment commenced on March 1.

In Brief

Professor Leslie Banks, professor of human ecology in Cambridge University, is making a lecture tour of Middle East countries (Egypt, Iraq, Persia, Syria, and the Lebanon) from February 12 to March 23.

Lord Haden-Guest has been appointed a Lord in Waiting to the King in succession to the late Lord Darwen.

Wills

Dr. Arthur R. Jennings, of Bath and London, left £35,875. Dr. W. Ingram Gordon, former secretary and chairman of the Blyth Division of the B.M.A., left £47,489. Dr. P. G. Horsburgh, G.M., formerly medical officer of health of Nuneaton, left £15,345. Dr. Thomas Wilson, emeritus professor of midwifery and diseases of women at Birmingham University, left £32,699.

COMING EVENTS

International Congress of Physical Medicine

The Congress will be held in London, July 14–19, 1952, under the presidency of Lord Horder. Meetings will be reserved for the clinical, remedial, prophylactic, and educational aspects of physical medicine, and with the diagnostic and therapeutic methods employed. Applications for the preliminary programme should be addressed to the honorary secretary (Dr. A. C. Boyle), International Congress of Physical Medicine (1952), 45, Lincoln's Inn Fields, London, W.C.2.

SOCIETIES AND LECTURES

A fee is charged or a ticket is required for attending lectures marked ●. Application should be made first to the institution concerned.

Saturday

ST. STEPHEN'S HOSPITAL (RHEUMATISM UNIT), Fulham Road, Chelsea, S.W.—March 3, 10 a.m., *"Cervical Spondylosis,"* introductory address by Dr. Russell Brain, P.R.C.P.; 11 a.m., *"Rheumatoid Disease—Its Widespread Clinical Manifestations,"* by Dr. Philip Ellman; 12 noon, *"The Psychiatric Factors in the Chronic Rheumatic Diseases,"* by Dr. David Shaw; 2 p.m., *"Orthopaedic Aspects of Rheumatic Disease and the Prevention and Treatment of Deformities,"* by Mr. Timbrell Fisher; 3 p.m., demonstration of cases and treatment by manipulation (if cases are available), by Mr. Timbrell Fisher; 4.30 to 5.30 p.m., *"Pathology of the Rheumatic Diseases, Including Gout,"* by Dr. A. G. Signy.

Sunday

ST. STEPHEN'S HOSPITAL (RHEUMATISM UNIT), Fulham Road, Chelsea, S.W.—March 4, 10 a.m., ward round and demonstration of cases, by Dr. Philip Ellman and the medical registrars; 11.15 a.m., *"Joint Lesions in General Medicine,"* by Dr. Philip Ellman; 12 noon, *"The Problem of Ankylosing Spondylitis,"* by Dr. F. Dudley Hart; 2 p.m., *"The Management of the Rheumatic Patient,"* by Dr. Francis Bach; 3 p.m., ward round demonstration of physical treatment and rehabilitation, by Dr. Francis Bach and the medical registrars; 4.30 to 6 p.m., *"The Radiological Diagnosis of the Rheumatic Diseases,"* lantern lecture by Dr. Grace Batten.

Monday

EDINBURGH UNIVERSITY.—At University New Buildings (Anatomy Lecture Theatre), Teviot Place, Edinburgh, March 5, 5 p.m., *"The Indications for Surgery in Peptic Ulcer,"* Macarthur Postgraduate Lecture by Mr. Norman C. Tanner. (See also March 6 and 7.)

●INSTITUTE OF CHILD HEALTH, Hospital for Sick Children, Great Ormond Street, London, W.C.—March 5, 5 p.m., *"Investigation of Disease in Infancy,"* by Dr. F. J. W. Miller.

INSTITUTE OF PSYCHIATRY, Maudsley Hospital, Denmark Hill, London, S.E.—March 5, 5.30 p.m., lecture-demonstration by Dr. E. Stengel.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, Cavendish Square, London, W.—March 5, 8.30 p.m., *"The Influence of Radiology on the Diagnosis of Abdominal Disease,"* Third Lettsomian Lecture by Dr. S. Cochrane Shanks.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN, 17, Bloomsbury Square, London, W.C.—March 5, 7.30 p.m., *"Biological Standardization—In Review and Pre-view,"* by F. J. Dyer, Ph.D.

Tuesday

BRITISH POSTGRADUATE MEDICAL FEDERATION.—At London School of Hygiene and Tropical Medicine, Keppel Street, London, W.C., March 6, 5.30 p.m., *"Recent Advances in Human Genetics,"* by Dr. J. A. Fraser Roberts.

EDINBURGH UNIVERSITY.—At University New Buildings (Anatomy Lecture Theatre), Teviot Place, Edinburgh, March 6, 5 p.m., *"Operative Methods in the Treatment of Peptic Ulcer,"* Macarthur Postgraduate Lecture by Mr. Norman C. Tanner (See also March 5 and 7.)

●INSTITUTE OF DERMATOLOGY, Lisle Street, Leicester Square, London, W.C.—March 6, 5 p.m., *"Prothrombin and the Blood Platelets,"* by Dr. J. O. Oliver.

INSTITUTE OF NEUROLOGY, National Hospital, Queen Square, London, W.C.—March 6, 5 p.m., *"The Anatomy of Pain Sensibility,"* by Dr. Graham Weddell.

INSTITUTE OF OPHTHALMOLOGY, Judd Street, London, W.C.—March 6, 5.30 p.m., *"Anatomy of the Orbit with Special Reference to the Related Paranasal Sinuses,"* by Dr. F. Stansfield.

OXFORD UNIVERSITY.—At Sir William Dunn School of Pathology, Oxford, March 6, 12 noon, *"The Treatment of Dysreaction Diseases by Nitrogen Mustard,"* by Professor Jímenez Díaz (University of Madrid).

Wednesday

EDINBURGH UNIVERSITY.—At University New Buildings (Anatomy Lecture Theatre), Teviot Place, Edinburgh, March 7, 5 p.m., *"Treatment of the Complications of Peptic Ulcer,"* Macarthur Postgraduate Lecture by Mr. Norman C. Tanner. (See also March 5 and 6.)

●INSTITUTE OF DERMATOLOGY, Lisle Street, Leicester Square, London, W.C.—March 7, 5 p.m., *"X-ray Technique,"* by Dr. C. W. McKenny.

LIVERPOOL MEDICAL INSTITUTION.—At the University, Manchester, March 7, 4 p.m., joint meeting with Manchester Medical Society. *"Stress Incontinence,"* by Professor T. N. A. Jeffcoate.

OXFORD UNIVERSITY.—At Radcliffe Infirmary (Maternity Lecture Theatre), Oxford, March 7, 5 p.m., *"Some Recent Work on Pulmonary Oedema,"* Litchfield Lecture by Professor G. R. Cameron, F.R.S.

SOCIETY OF CHEMICAL INDUSTRY.—At Royal Institution, Albemarle Street, London, W., March 7, 6 p.m., meeting of Microbiological Panel of Food Group, *"Microbial Metabolism and its Industrial Implications,"* by Dr. A. J. Kluyver (Holland).

Thursday

ALFRED ADLER MEDICAL SOCIETY.—At 11, Chandos Street, London, W., March 8, 8 p.m., *"Brain as the Inferior Organ,"* by Professor Alexander Kennedy. Discussion to be opened by Dr. James Moore.

BRITISH POSTGRADUATE MEDICAL FEDERATION.—At London School of Hygiene and Tropical Medicine, Keppel Street, London, W.C., March 8, 5.30 p.m., *"Statistics in Medical Research,"* by Professor A. Bradford Hill, Ph.D., D.Sc.

LONDON JEWISH HOSPITAL MEDICAL SOCIETY.—At Dorchester Hotel, Park Lane, London, W., March 8, 6.30 p.m. to 2 a.m., annual dinner-dance.

MEDICAL SOCIETY OF LONDON.—At Claridge's, Brook Street, London, W., March 8, 7.30 for 7.45 p.m., 171st anniversary dinner.

ROYAL ARMY MEDICAL COLLEGE, Millbank, London, S.W.—March 8, 5 p.m., "*Some Clinical Aspects of Mass Radiography*," by Dr. E. R. Boland.

ST. ANDREWS UNIVERSITY.—At Lecture Theatre, Materia Medica Department, Medical School, Small's Wynd, Dundee, March 8, 5 p.m., "*Skin Manifestations in Some Internal Diseases*," by Dr. J. Kinnear.

ST. GEORGE'S HOSPITAL MEDICAL SCHOOL, Hyde Park Corner, London, S.W.—March 8, 4.30 p.m., lecture-demonstration on psychiatry.

TORQUAY AND DISTRICT MEDICAL SOCIETY.—At Torbay Hospital, March 8, 8.30 p.m., "*Chronic Diarrhoea*," by Dr. E. R. Cullinan.

UNIVERSITY COLLEGE (Anatomy Theatre), Gower Street, London, W.C.—March 8, 1.15 p.m., "*John Wesley and His 'Primitive Physick.'*" by Dr. E. Ashworth Underwood.

Friday

INSTITUTE OF ALMONERS.—At Central Hall, Westminster, London, S.W., March 9, 6 p.m., annual general meeting; "*Social Case Work To-day and To-morrow*," by Mr. Roger Wilson.

ROYAL MEDICAL SOCIETY, 7, Melbourne Place, Edinburgh.—March 9, 8 p.m., Valedictory Address by the Senior President.

ROYAL SANITARY INSTITUTE.—At Guildhall, Saturday Market Place, King's Lynn, March 9, 10 a.m., papers: "*River Pollution*," by S. Greenburgh, Ph.D., F.R.I.C.; "*The Work of a Housing Manager in the Post-war Era*," by Miss M. L. Keith. Afternoon visit.

UNIVERSITY OF WALES: WELSH NATIONAL SCHOOL OF MEDICINE.—At Reardon Smith Lecture Theatre, Park Place, Cardiff, March 9, 8 p.m., "*The Influence of Welshmen on the Course and Development of British Medicine*," William Sheen Memorial Lecture by Professor Ernest Finch.

Saturday

INSTITUTE OF ALMONERS.—At Connaught Rooms, Great Queen Street, London, W.C., March 10, 7 p.m., annual dinner.

SOUTH-EAST METROPOLITAN REGIONAL TUBERCULOSIS SOCIETY.—At Brook Hospital, Shooter's Hill Road, London, S.E., March 10, 10.30 for 11 a.m., "*The Evolution of the Surgical Treatment of Pulmonary Tuberculosis*," by Mr. J. B. Hunter.

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

Brash.—On February 21, 1951, at Chatsworth House, Prestatyn, to Patricia Mary, wife of Dr. David Brash, a son.

Frankenberg.—On February 15, 1951, at Hillingdon Hospital, Middlesex, to Mieke (formerly Van Tricht), wife of John Frankenberg, M.R.C.O.G., a daughter—Joyce Penelope Wilma.

Gaisford.—On February 20, 1951, at St. Mary's Hospital, Manchester, to Mary, wife of Professor Wilfrid Gaisford, M.D., F.R.C.P., a daughter.

Glyn.—On February 14, 1951, at the Middlesex Hospital, to Daphne, wife of Dr. John H. Glyn, a son.

Hutt.—On January 18, 1951, to Jill (formerly Chappel), B.M., B.Ch., wife of Charles W. Hutt, M.B., B.Chir., Danedale Lodge, Minster Road, Isle of Sheppey, a son—Nicholas Charles.

Parker.—On February 21, 1951, at Brighton, to Margaret, wife of Dr. W. S. Parker, a son.

Todd.—On February 20, 1951, at Liverpool, to the wife of R. McL. Todd, M.D., M.R.C.P., a daughter.

DEATHS

Alexander.—On February 22, 1951, at 53, Chiltern Drive, Surbiton, Surrey, Alfred Gahagan Alexander, M.D., late of Moseley, Birmingham.

Campbell.—On February 21, 1951, at 111, Torquay Road, Paignton, Devon, Ernest Alexander Campbell, L.R.C.P.&S.Ed., L.R.F.P.S., aged 80.

Clifford.—On February 21, 1951, at Thornhill, Stalybridge, Cheshire, Thomas Clifford, M.B., aged 87.

Cochrane.—On February 18, 1951, at 6, Albert Road, Bolton, Lancs, Andrew Cochrane, M.B., Ch.B.

Dobson.—On February 22, 1951, at the Finchley Memorial Hospital, London, N., Josiah Rowland Beniamin Dobson, M.B., B.S., of 3, Windsor Road, Finchley, London, N.

Ling.—On February 24, 1951, at Ashton House, George Street, Leamington Spa, Edwin Joseph Ling, L.R.C.P.&S.Ed., L.R.F.P.S., formerly of Rotherham, Yorks, aged 87.

Molony.—On February 23, 1951, at the Royal Cornwall Infirmary, James Gorges Massy Molony, M.B., B.Ch., of Dromore, Truro, aged 67.

Pollock.—On February 19, 1951, at Bolingbroke Hospital, George Pollock, M.D., D.O.M.S., 82, Wimbledon Park Road, Southfields, London, S.W.

Slane.—On February 23, 1951, at 63, King's Road, Richmond, Surrey, Herbert James Slane, M.D., late of Burnley, Lancs, aged 85.

Tuxford.—On February 23, 1951, Arthur Wren Tuxford, M.D., D.P.H., of Fairholme, St. Ives, Ringwood, Hants.

Vines.—On February 20, 1951, at Paignton, Devon, Charlotte Susannah Vines, L.R.C.P.&S.Ed., L.R.F.P.S., Brodawel, Newport, Mon, formerly of C.E.Z.M.S., Punjab, aged 79.

Waters.—On February 16, 1951, at his home, Graystones, St. Aubin's, Jersey, Walter James Waters, O.B.E., M.R.C.S., L.R.C.P., Lieutenant-Colonel, R.A.M.C., retired, aged 74.

Whitworth.—On February 21, 1951, at Vicarage Road, St. Agnes, Cornwall, William Cuthbert Whitworth, M.R.C.S., L.R.C.P., aged 63.

Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Treatment of Senile Cataract

Q.—*When should operation be performed in cases of senile cataract? What can be done to help the patient while waiting for operation? Is there any satisfactory alternative treatment to operation?*

A.—In days gone by the criterion for operation in senile cataract was whether the cataract was mature or not—that is, whether the whole of the lens was opaque. A semi-opaque soft cortex made operation difficult, and not infrequently led to complications owing to residual soft cortex. With the present methods of operation the question of maturity is no longer significant, and the criterion for operation to-day is whether the patient is sufficiently handicapped by the cataract to justify operation. There is, therefore, no need for patients to "wait for operation." If the patient no longer can get about comfortably or is unable to continue his work, cataract operation should be performed.

There is no alternative, satisfactory or otherwise, to operative treatment. The many medicinal and local therapies that have been, and continue to be, advocated have never had any valid basis and are useless in practice. Such occasional good results as have been claimed are consistent with the well-established fact that early cataract sometimes progresses very slowly, and any form of treatment may well give the impression that a progressive affection is being checked. Rarely, hypermature cataract may become subluxated or actually dislocated into the vitreous, giving immediate and striking improvement in vision, but intractable secondary glaucoma frequently sets in, especially in cases of subluxation.

Complications of Influenza

Q.—*What complications are particularly common in the present epidemic of influenza?*

A.—In the present epidemic the complications are chiefly pulmonary. The initial fever and symptoms of the attack of influenza have often subsided in three or four days, but after a short period of improving health the patient develops pyrexia, cough, possibly pleuritic pain, and intense malaise. All the signs of the well-known complications of influenza may now arise. This year they have usually pointed to bronchiolitis. Thus we meet with rapid respiration, cyanosis—sometimes of violet hue seen best in the lips—and diffuse rhonchi and medium rales over one or both lower lobes. The sputum is purulent. Unless bronchopneumonia is also present, the *x*-ray appearances are usually normal.

The other relatively common complication in this epidemic is influenzal gastritis, with nausea, retching, vomiting, epigastric pain, and even haematemesis or melaena.

Stilboestrol and the Prostate

Q.—*What are the indications and contraindications for the use of stilboestrol in prostatic obstruction? How should it be given, in what dosage, and for how long? What complications of this treatment are encountered?*

A.—Stilboestrol should be given only when the prostatic obstruction is due to carcinoma of the prostate. Its effect on benign enlargement is very slight from the pathological aspect and negligible clinically. There is a danger that its continued use in benign enlargement may delay the relief of obstruction by surgical means, and thus prejudice

ultimate recovery. The malignant prostate, on the other hand, often responds in a dramatic fashion; micturition is improved, residual urine diminishes, and the prostate becomes softer. At the same time the general condition improves and the pain of osseous metastases is lost or greatly diminished. Ultimately the growth usually fails to respond to stilboestrol, but this may not happen for five years or more.

It should be given by mouth in doses starting at 1 mg. t.d.s., increasing to 2 mg. t.d.s. on the second day, 3 mg. on the third, and so on up to 5 mg. t.d.s. on the fifth day. The dose of 15 mg. daily is usually sufficient. It should be maintained for several months, after which it may be gradually reduced to 5 mg. or less daily according to progress. This maintenance dose must be continued indefinitely for the rest of the patient's life. If symptoms or signs reappear it is sometimes effective to increase the dose again even to 100 mg. daily.

Because of the favourable initial response it is sometimes justifiable to use stilboestrol for therapeutic trial in a case of doubtful malignancy, but if there is no improvement after about three weeks other measures must be adopted.

The side-effects of treatment are enlargement of the breasts and pigmentation of the areolae, the mid-scrotal line, and any abdominal scars; the testes become small, and erections are absent. Occasionally the drug produces nausea, when dienoestrol in the same dose may then be substituted. We have not found ethinyl oestradiol so effective as stilboestrol in carcinoma of the prostate. In general, there are more failures from underdosage than complications from overdosage.

Monilethrix

Q.—*An apparently healthy boy, aged 6, has sparse, very fine lifeless hair on his head. The scalp appears otherwise normal. What are the likely causes of the condition of the boy's hair?*

A.—It sounds very much as if this boy's scalp is affected with a congenital abnormality. Perhaps the commonest of these is monilethrix, in which individual hairs can be seen under the microscope to have a more or less regular beaded appearance. Other congenital impairment of hair growth is less common and may be associated with defects in other ectodermal structures. Follicular keratosis, both of the scalp and elsewhere, may be present, together with nail dystrophies and abnormal development of teeth. In more severe cases sweat glands and sebaceous glands are absent or under-developed. No treatment is likely to have more than temporary effect.

Most of these disorders tend to be familial, and an inquiry about other members of the family and ancestors may yield helpful information. The effects of a congenital disorder of this sort are liable to become more noticeable as the child gets older, and, of course, the possible coexistence of other developmental abnormalities must be borne in mind. The mode of inheritance of these various conditions has not been fully worked out.

Insect Repellents

Q.—*What are the properties of methyl phthalate, dimethyl phthalate, and butyl phthalate? How are they used as insect repellents? What ill effects have they on skin, etc.? To what extent are they organic solvents? What vehicles can be used in the application of these drugs? Where can they be obtained?*

A.—"Methyl phthalate" and "butyl phthalate" are used rather loosely for the compounds dimethyl phthalate (D.M.P.) and dibutyl phthalate (D.B.P.), which are esters of phthalic acid. They are colourless, slightly oily liquids with very slight odours, miscible with alcohol and several other organic solvents, but insoluble in water. The boiling points are 282° C. (D.M.P.) and 338° C. (D.B.P.) and the specific gravities 1.196 and 1.050 respectively. They can be used as repellents to prevent the bites of mosquitoes and other biting diptera and to prevent attack by trombiculid mites, etc. They may be applied directly to the skin of exposed areas or they can be rubbed over clothing or applied to wide-mesh veils. The dimethyl compound appears to be slightly more effective, but the dibutyl compound is more persistent, particularly on application to clothing. Treatment of the skin will give protection for only a matter of hours, but applications to clothing (socks, cuffs, trousers, etc.) will remain effective for two or three weeks.

Dimethyl phthalate has been used extensively in industry as a plasticizer for cellulose and ethyl cellulose. Therefore it is liable to have a solvent action on artificial silks (of some types), plastic jewellery, fountain-pens, spectacle frames, etc., and care should be exercised to prevent damage of such articles.

The phthalates can be used undiluted on the skin, but they are liable to cause temporary (but sometimes acute) smarting if applied to delicate areas such as eyelids, lips, etc. Applied to the skin, they feel unpleasantly greasy, and a cosmetically more satisfactory way of using them is in an ointment or emulsion base. One formula recommended by the Scottish Department of Health, in the report on *Control of Midges* (H.M.S.O., 1946, price 2d.), is lanette wax, 5 g.; triethanolamine, 9 ml.; oleic acid, 27 ml.; D.M.P., 100 ml.; water, 100 ml. There are other formulae, but the proportion of D.M.P. should not fall below 30%.

The phthalates can be obtained wholesale from many chemical supply firms, or retail from many pharmacists in Britain, made up into preparations of approved formulae.

Lead-poisoning in Ship-breaking Industry

Q.—*Eighteen cases of lead-poisoning were notified last December in this country (see "Journal," February 3, p. 259). What is the origin of these cases?*

A.—The 18 cases of lead-poisoning reported to H.M. Chief Inspector of Factories in December, 1950, occurred in the ship-breaking industry (*Ministry of Labour Gazette*, January, 1951). No cases of lead-poisoning were reported among workmen engaged in the smelting of metals, or from paint and colour works or other industries, in that month. In the ship-breaking industry volatilization of lead from the paint and red-lead stopping on the armour plating occurs in the heat of the oxyacetylene blow-pipe flames used for cutting purposes.

Chorda Tympani

Q.—*In otitis media or after myringotomy I should have thought that the chorda tympani would sometimes be damaged, with resultant alteration or loss of taste. Could you explain why this is not the case?*

A.—The reason is that the nerve runs, in its intratympanic course, between the neck of the malleus and long process of the incus, deep to the membrana flaccida (Shrapnell's membrane). If the myringotome were carried as high as is mechanically possible the nerve could not be severed. In acute otitis media the nerve is not compressed in a bony canal nor unduly stretched, so there is no interference with its function. Incidentally, it is remarkable how very rare it is for a patient on whom a radical mastoidectomy has been performed to mention this disability.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology, Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.
Authors desiring REPRINTS should communicate with the Publishing Manager, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs.
ADVERTISEMENTS should be addressed to the Advertisement Manager, B.M.A. House, Tavistock Square, London, W.C.1 (hours 9 a.m. to 5 p.m.). TELEPHONE: EUSTON 2111. TELEGRAMS: *Britmedads, Westcent, London.*
MEMBERS' SUBSCRIPTIONS should be sent to the SECRETARY of the Association. TELEPHONE: EUSTON 2111. TELEGRAMS: *Medisecra, Westcent, London.*
B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.